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Yours very truly,

3-5-17

1/7 |

Railway World

VOLUME LIX ESTABLISHED 1856 NUMBER 1

A MONTHLY JOURNAL (successor to Railway World, a weekly publication) designed to present an accurate and comprehensive review of current events pertaining to Transportation, Commerce and Finance and to afford a medium for the development of a clearer understanding of the mutuality of interest which exists between those who employ and those who operate the railways.

Publication Office: 612 Chestnut Street, Philadelphia, Pa.

NEW YORK OFFICE.
206-7 Hudson Building, 82 Broadway.

PITTSBURGH OFFICE.
504 Germania Savings Bank Building.

TELEPHONE NUMBERS.
Philadelphia .... Walnut 228
New York .... Broad 6889

Terms: $3.00 per Annum in Advance
Foreign Subscriptions: $3.50 per Annum in Advance
Single Copies: 25 Cents
Advertising Rates furnished upon application

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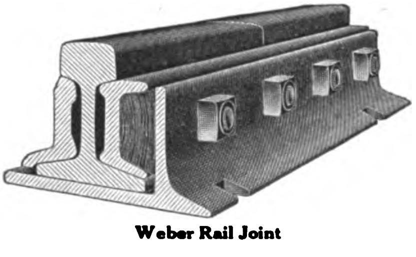

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Railway World

VOL. LIX. JANUARY, 1915 No. 1

Important Developments in the Transportation Field

DEVELOPMENTS AT THE NATIONAL CAPITOL

Many events of importance and interest to the transportation industry are transpiring at Washington, proposals for all sorts of legislation by Congress and action by executive branches of the Federal Government now being under discussion there.

Three measures of recent introduction, in particular, are engaging the chief attention of those leaders in both Houses of Congress who devote themselves especially to legislation affecting the common carriers. The trio includes:

First, a bill (S7185) which has been presented by Senator Pomerene of Ohio, acting in behalf of Senator Newlands, chairman of the Senate Committee on Interstate Commerce, to prevent overissues of securities by carriers and to enlarge the Interstate Commerce Commission from seven to nine members.

Second, a bill (H. R. 20470) which has been introduced by Representative Adamson of Georgia, chairman of the House Committee on Interstate Commerce, amplifying and making more stringent the "commodities clause" of present interstate commerce law.

Third, a joint resolution (S. J. Res. 224) which has been introduced by Senator La Follette of Wisconsin, declaring unlawful all the advances in freight rates proposed to be allowed by the Interstate Commerce Commission in the original decision in the advance freight rate case and in the later decision grainting in large measure the increases asked for.

Both Chairman Newlands of the Senate Committee on Interstate Commerce, and Chairman Adamson of the House Committee, have let it be understood they will switch onto the main legislative track the railway measures with which they are identified, the minute an opportunity is offered. Senator LaFollette is understood to have the full support of Senator Cummins of Iowa and Senator Clapp of Minnesota in his efforts to obtain an airing in Congress, if not a suspension by law, of the advance freight rates pleaded for by the Eastern railroad officials. And it is agreed that, even though final action is not taken at this short session of Congress to end March 4, the ground work will be laid this winter for the turning of the legislative wheels along the lines indicated at the next session, very possibly at a special session next summer.

The bill introduced by Senator Pomerene for Chairman Newlands is similar in many of its provisions to the railway securities bill, which was a part of the Administration anti-trust legislative program last summer. The Administration bill was passed by the House, approved in amended form by the Senate Committee on Interstate Commerce and is now on the Senate calendar awaiting action.

At the opening of the present session of Congress, Chairman Newlands announced his intention to push its consideration in the Senate to final action. But President Wilson, observing business conditions and the lowering of railroad revenues, grew lukewarm in his desire for that measure; sharp divisions of opinion among Senators as to details of the regulations for the issuance of new securities were manifested. Those conditions, together with the pressure of

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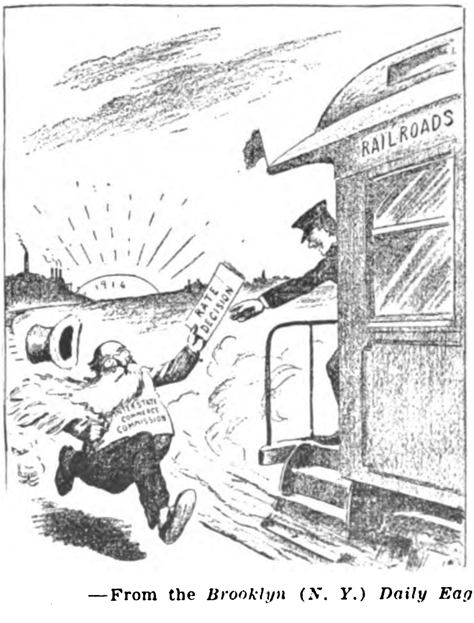
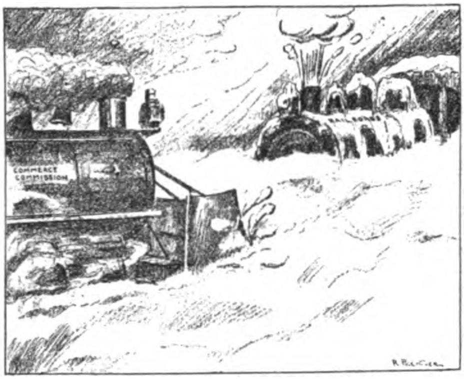


—From the *Brooklyn* (N. Y.) *Daily Eagle.*



TO THE RESCUE!

—From the *Fnancial America.*

time in the short session for the passage of the big annual supply bills and the ship-purchase bill, has held the railway securities measure in the background until now.

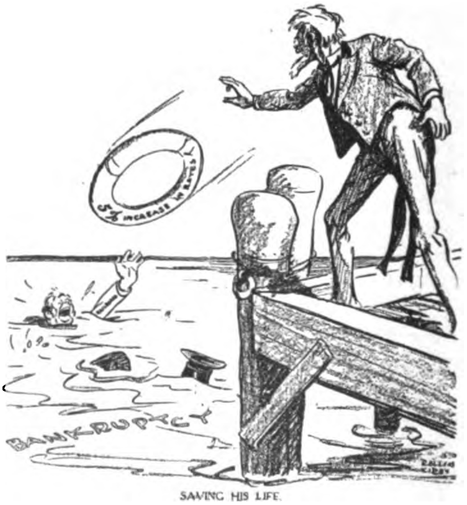
Differences between the older measure and that just introduced grew, to some extent, out of recent conferences between Chairman Newlands and members of the Interstate Commerce Commission. The most striking new provision is that for enlarging the size of the Interstate Commerce Commission from seven to nine members. When originally created in 1887, the Commission had a membership of five; that was increased to seven in 1906. If it is now enlarged again in accordance with the provisions of the Pomerene bill, the terms of the new members would expire in 1920 and 1921 respectively, and the successors would serve for full terms of seven years.

Under the Pomerene bill, the Commission is authorized to divide its members into as many divisions of five members each as it may deem desirable, with the senior commissioner, in point of service, in each commission acting as its chairman; lines of work may be assigned to the several divisions and each division or a majority of it is to have full power and authority to issue orders, decisions or reports and enforce them as if it were the whole Commission.

The enlargement of the Commission was advocated by state railroad commissioners at the convention recently held in Washington by the National Association of State Railway Commissioners. At that convention the Shreveport rate cases were practically tried all over again. The Louisiana Commissioners and their attorneys argued that there never would have been a necessity for taking the Shreveport rate case to the Supreme Court of the United States if the Interstate Commerce Commission had been a larger body and able to devote more time than they have to the settling of freight rate questions.

In fact, members of the Interstate Commerce Commission delivered addresess at that convention which served to show that they feel themselves greatly handicapped and their burdens very much added to by the constant conflict of authority between state railway commissioners and the Interstate Commerce Commission. It was pointed out, for instance, that when a Louisiana Commission makes one rate and a Texas Commission another for use in their respective states, they frequently do so without regard to the through rates established by the Interstate Commerce Commission. The result has frequently been that the Interstate Commerce Commission has been obliged to shoulder great burdens in straightening out the conflicts between the sum of local rates and through rates.

It is the hope of those favorable to the new measure to have it taken up at an early meeting of the Senate Committee on Interstate Commerce, whipped into final shape for presentation to the Senate and, perhaps put into legislation as a substitute for th measure already passed by the House. Som of the amendments, Senator Pomerene believes, will be acceptable to the House leaders. Others are sure to bring out a pronounced division of opinion, he admits, and may cause such prolonged discussion as to prevent action at this short session. Senator Newlands insists, however, that such legislation will be pushed vigorously at the next



SAVING HIS LIFE.

—From the *New York World.*

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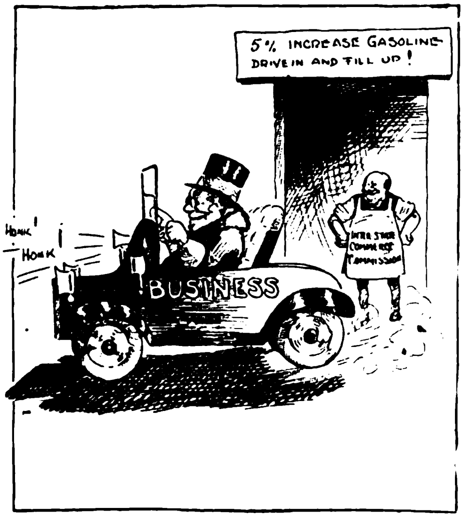
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BUSINESS
INTERSTATE COMMERCE COMMISSION

—From the *Baltimore (Md.) Sun.*

session of Congress, if final action is not obtained this winter.

The Adamson bill, now before the House Committee on Interstate Commerce, is the fruition of long agitation and study toward the strengthening of the "commodities clause" of the present interstate commerce laws. Important court decisions have served to determine the exact effect of the statutes now on the books and there is the contention that the full object of divorcing the railroad business from industrial activity, such as the mining and selling of coal, is not to be obtained without additional enactments by Congress.

The Adamson bill, it is commonly understood at the National Capitol, was drafted by representatives of the Department of Justice who have had experience in the enforcement of the present commodities clause. It is designed to be in conformity with court decisions so that it will stand the severest legal tests when efforts to enforce it are made through the courts. It is framed with the evident purpose to allow the present commodities clause, as interpreted by the courts, to stand, while the scope and effect is broadened. This was the policy adopted in the framing of the Clayton anti-trust law and the Federal Trade Commission law, which were designed to amend and extend the original Sherman law against restraints of trade. The Adamson bill contains nine sections, five of which are devoted, by differing descriptions, to prohibiting common carriers from the carrying of commodities in the ownership of whch they have the slightest direct or indirect interest.

Of peculiar personal interest to railway officials and employes is that clause which specifies that "a violation by a corporation shall be deemed to be also a violation by the individual directors, officers, receivers, trustees or agents of such corporation who shall have authorized, ordered or done any of the acts constituting the violation in whole or in part."

Most sensational, however, of the trio of important railroad measures now before Congress is the resolution presented by Senator LaFollette of Wisconsin, which would have the effect immediately upon passage of prohibiting the Eastern railroads from putting into effect the increased freight rates recently allowed by the Interstate Commerce Commission.

The resolution would declare it to be unlawful for any common carrier in Official Classification territory to put into effect any higher freight rate in interstate commerce than was in effect July 29, 1914, the day of the announcement of the first decision of the Commission in the now-famous advance rate case.

The reason for prohibiting the higher rates, summarized from the long preamble to the resolution, is that the Interstate Commerce Commission allowed the increases solely because of conditions resulting from the European war and that the railroads did not show the older and lower rates to be "unjust and unreasonable." The preamble recites the history of the advance freight rate case and concludes:

"The report, decision and orders made and issued by the Commission in this advance rate case operate to increase the trans-

BEFORE THE INCREASE WAS GRANTED.
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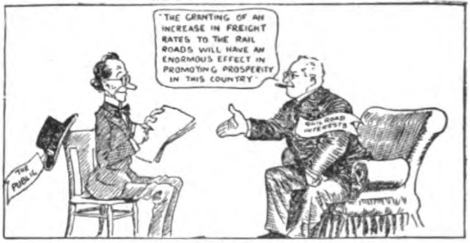
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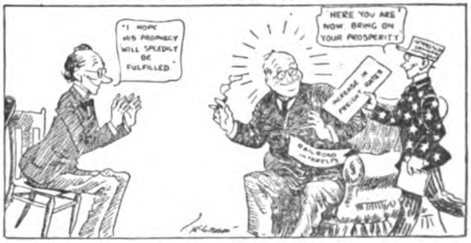
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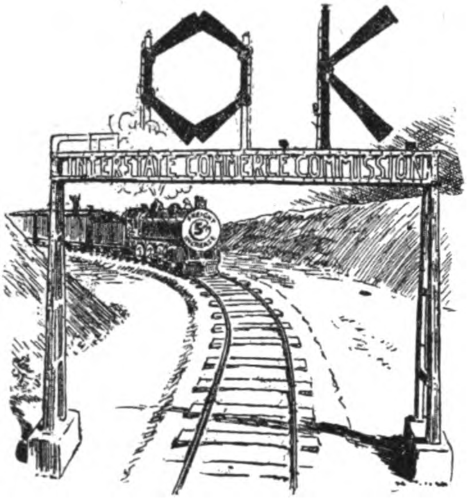


The Signal.—*Philadelphia Record.*

portation charges in Official Classification territory by approximately $50,000,000, solely upon the grounds and for the reason that in the opinion of the Commission the railroads are in need of money, as appears by the report and decision of said Commission and not upon the grounds and for the reason that the Commission after full investigation was of the opinion that the existing rates in Official Classification territory were found to be unjust and unreasonable to said carriers, nor did said Commission, take, nor did said carriers offer any testimony whatever to show that the existing rates in Official Classification territory were so low as to be unjust and unreasonable, nor did said Commission determine and prescribe as required by law that the advanced rates and charges granted to the carriers by the report, decisions and orders made and issued in said case, were just and reasonable rates and charges; and as appears of record in said case, the carriers in Official Classification territory refused to offer any testimony in support of the reasonableness and justice of the increased rates petitioned for and granted in said case; that the course pursued by said carriers in this regard and the decision and orders of the Commission in not requiring testimony as to the reasonableness and justice of the proposed advance in rates were without precedent in the history of the Commission and are unwarranted by law."

Common carriers, however, would be allowed to file new applications for increases, to be allowed if supported by evidence that they are just and reasonable.

With the Administration certainly in sympathy with the relief granted to the railroads by the Interstate Commerce Commission, it is generally admitted by leaders of Congress that this joint resolution will remain on a sidetrack for a long time. It will, however, form the basis for agitation against the railroads by Senatar LaFollette and by other radicals, such as Senator Cummins and Senator Clapp.

This resolution also presents the case of these Senators in their announced opposition to the confirmation of Henry Clay Hall to succeed himself as Interstate Commerce Commissioner. Mr. Hall changed his attitude toward the proposed increases in freight rates between the two decisions of the Commission; his nomination to succeed himself gave Messrs. LaFollette, Cummins and Clapp opportunity for an anti-railroad fight. The nomination was allowed to have the approval of the Senate Committee on Interstate Commerce practically without opposition, so that the fight could be made on the floor of the Senate; holding it up in committee might have enabled Mr. Hall to appear and make a statement in reply to the criticism of the Commission's reversal of attitude to the freight rate advances.

Another measure, now before Congress, in which the railroads have a keen interest, is the postoffice appropriation bill, which carries the appropriation for railway mail pay. The bill was passed by the House loaded down with many legislative provisions usually not carried in supply measures and is now under consideration by the Senate Committee on Post Offices. Predictions are freely made at the Senate end of the capitol in Washington that the amount of legislation in the measure threatens its passage at this session. Either much of it must be eliminated, it is the common belief, or the bill will fail; failure of the general measure would probably mean the passage of a resolution continuing the appropriations of last year in the same amounts.

The railway mail pay feature of the bill is one of those to which special attention is being paid. Claims of the railroads of inadequate compensation for the service which they give Uncle Sam in the carrying of the mail, now vastly increased in volume by reason of the enlarging use of the parcel post system, are being given attention. The Post Office Department, the recommendations of which have much weight with the Senators in charge of the measure, cannot be said to be giving an altogether sympathetic ear to the voice of railroad officials and its influence can be counted in opposition.

There is a growing disposition in Washington to ascertain what the Government is going to get—and incidentally what the railroads are going to get—for all the expense involved in the special committee of Congress on railway mail pay. Enormous sums of public funds have been used by that committee to prepare volume after volume of reports. Railroad officials from all over the country have been put to a loss of time and a money expense again and again to come to Washington to testify on various phases of the questions before the committee. When former Senator Jonathan Bourne, Jr., of Oregon, left the Senate two years ago, a place was provided for him at the head of this committee and although report after report has been issued on the subject of railway mail pay, no action for the relief of the railroads has as yet been obtained.

While railway mail pay is receiving attention at the Capitol in Washington, railway employment is getting attention in the Department of Labor. Anthony Cammenetti, commissioner general of immigration, recently issued instructions to the agents of the bureau of information under him for giving special aid to railroads in obtaining immigrant and other unemployed labor. The general operation will be that of an employment bureau; it will be the function of the agents to learn where such labor is demanded by ralroads or at industrial plants and to direct incoming laborers and unemployed workmen to the jobs. The assistance of postmasters, rural mail carriers and agents of the Department of Agriculture, numbering thousands, is to be utilized in the general scheme of building up a general Federal employment bureau. Legislative action is not thought to be necessary at this time, but such a prominent Congressional leader as Representative Underwood, majority leader of the House, has announced Congress will aid the prompt passage of such laws as may be found necessary, as the operation of the bureau develops.

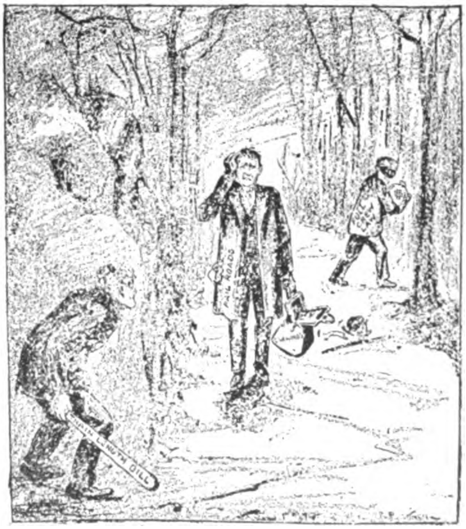
Thomas Shallcross, Jr., of Philadelphia, president of the National Association of Real Estate Exchanges, was in Washington recently at the head of a delegation of representatives of exchanges in Pennsylvania, to urge upon the Interstate Commerce Commission the appointment of real estate experts in connection with the work of the physical valuation of railroads. It is urged that the real estate values of common carriers can be determined best by those experts who give their whole time and attention to real state values of all kinds. The need for such experts, it is understood to be the general view of the Commission, will be developed as the gigantic task proceeds and no definite answer was given the delegation.

A tentative draft of a proposed revision of the rules governing the monthly reports of railway accidents has been sent out to the railroads by the Interstate Commerce Commission, with a request that suggestions for changes or amendments be made. Announcement of a hearing on the proposed revision for January 18 was made and written replies were requested by January 25.

Besides a requirement for detailed reports of non-train accidents, it is proposed to omit the extended summary statement of casualties required by the present rules and to substitute a summary statement of train accidents compared on a basis of locomotive miles and a summary statement of industrial casualties compared on a basis of man-hours of employes.

THE RAILWAYS IN 1914

Railway developments during 1914 were largely influenced by a policy of severe retrenchment. In the face of steadily decreasing earnings and increasing expenses, rigid economy became an imperative necessity. While it would be going too far to say that the plant was permitted to actually deteriorate, it is nevertheless a fact that the improvements imperatively



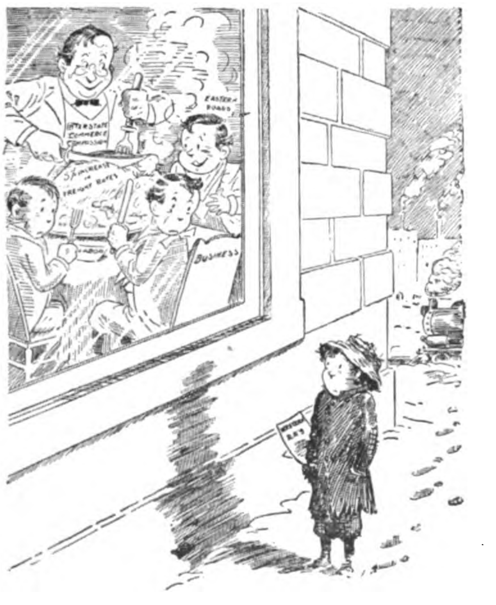
"I WONDER IF HE'S GOT ANYTHING MORE?"

—From *Financial America.*

needed, both from the standpoint of the industry and of commerce, were of necessity postponed until a time when there would be funds available for such purposes. Many properties were forced to the brink of receivership; and the year altogether proved one of the most trying through which the railroads have ever passed. Receiverships were established for twenty-two railroads and the foreclosures for the year numbered eight. With the exception of 1908, the year registered more new receiverships than any other since 1896. The railways now in the hands of receivers number sixty-eight with a total mileage of 21,048 miles, and capitalization represented by outstanding stock and funded debt of more than $1,250,000,000.

Railway construction during 1914 felt the same depressing influence as did other branches of the service, the total for the year showing but 1,532 miles, the smallest since 1894. In fact, the tendency since 1902 has, with few exceptions, been steadily downward, notwithstanding the fact that the country stands in urgent need of a distinctly progressive policy in railway construction for many years to come. No greater or more significant indication of the restrictive influence of legislative and regulative developments can be found, than in the constant and alarming shrinkage in new railway construction; and nothing so vitally affects the welfare of the country, in view of its undeveloped resources and millions of acres which still are awaiting proper transportation facilities in order that they may respond to the demands of the nation and the world.

"Poor Little Feller"



—From *St. Louis Globe Democrat.*

As to railway construction by states, Florida led with a total of 220 miles, with Washington second with a total of 142 miles. The only other states in which more than 100 miles were constructed, were Idaho and California, the former with 117 and the latter with 103. Texas, the great undeveloped empire of the Southwest, reported but 50 miles, indicating what a deplorable condition exists in that section of the country, due largely, if not entirely, to the attitude of public regulators.

It is little to be wondered at, in view of the above, that the purchase of new equipment in the United States and Canada, was greatly restricted during 1914. While the new passenger cars built during that period held up fairly well with a total of 3,691 against 3,296 for the preceding year, the freight cars built numbered but 104,541 as compared with 207,684 for 1913. The actual orders placed for cars in the United States, Canada and Mexico during the same period included 2,002 passenger cars and 80,264 freight cars. The number of locomotives built in the United States and Canada during 1914 was but 2,235, not half so many as for the preceding year and the records have to be searched as far back as 1898 before so poor a showing can again be found. The actual number of locomotives purchased during this period numbered but 1,265.

Owing to the same general influences, developments in steam railway electrification did not show the same growth as might have occurred under other conditions. Important progress, however, was made and one of the significant developments was the report of the first year of the electric operation of the Butte, Anaconda and Pacific which shows that heavy tonnage ore trains can be regularly handled on steep grades with marked reductions in operating costs. During the year the New Haven finished the electrification of its four-track main line into New Haven, Conn., and the St. Paul made considerable progress in the electrification of its first engine district of 114 miles from Harlowton, Mont., to Deer Lodge. The Norfolk and Western was also engaged in the electrification of 30 miles of its line between Bluefield, W. Va., and Vivian, while the Pennsylvania has been making rapid progress in the electrification of 80 miles of suburban tracks on its Paoli sub-division in the suburbs of Philadelphia.

A GREATER REASON FOR OPTIMISM

The recent decision of the Interstate Commerce Commission which permitted an increase, with certain exceptions, of five per cent in the freight rates of Eastern carriers, represented a definite victory for the railway interests of the entire country. While the financial results which will be obtained from this increase are far from sufficient to satisfactorily meet the present and future requirements of the railways involved, the mere fact that the Commission has at last recognized the necessity for a more liberal treatment of our great arteries of commerce and of providing them with increased funds to meet the constantly increasing demands of business, is a concession which augurs well for future railway developments, and, as President Rea, of the Pennsylvania Railroad, recently pointed out, marks, it is hoped, "the beginning of a broad, constructive policy in railroad regulation so imperatively needed."

There is, indeed, reason for congratulation; but it would, nevertheless, prove a grave blunder for railway managers to decide that, in view of their recent successes, they could afford to disregard, even for the time being, publicity activities. It should be fully appreciated that this victory was due to a large, if undetermined extent, to the pressure of public opinion which was, of course, influenced by the justness of the cause, but it is by no means certain that the case would have resulted so satisfactorily, had it not been upheld by public approval.

The most encouraging feature of the decision rests in the fact that railway publicity efforts, while as yet unscientific and lacking that harmony of action which is necessary to produce maximum results, have produced an improvement in public sentiment which has had a definite influence upon the welfare of the carriers. It should not be forgotten, however, that political agencies are enormously active and unless the railways continue to enlighten the public, the pendulum would again soon swing far towards the side of restrictive regulation and legislation. As Senator-elect Harding, of Ohio, recently said, in effect, in an address before the Railway Business Association, the present plight of the railways is at least partly their own fault because of a lack of proper effort to keep the public informed regarding their real requirements. To quote further from Mr. Harding's address: "There are two things to commend to the public and to railway managers, one is simple honesty, the other is greater intimacy—the fullness of understanding between the railway management and the public served."

In other words, one of the most vital requirements of present day railway management is a publicity effort broad and big enough to adequately represent the carriers in their efforts to place before the public the requirements of a progressive transportation plant and the absolute dependence of the prosperity of the public upon the maintenance of this plant. Such an effort, which could be organized in the form of a co-operative bureau, should be conducted on the basis of absolute frankness and honesty. Its efforts should not only be informative but constructive and its methods of presenting railway news and facts to the public, should be of such a character as to stimulate an interest in our great arteries of commerce and create and maintain a friendly and tolerant public opinion. A bureau of this character, in view of the recent rapid growth of regulative tendencies, is vital to the future welfare of the railways.

In a recent address before the Williamsport (Pa.) Board of Trade, Ivy L. Lee, executive assistant of the Pennsylvania Railroad, stated that during the past few months there had occurred four events of great moral importance to the railroads. These included the letter of President Wilson to the Eastern railroad executives in favor of a liberal and sympathetic treatment of our transportation agencies; the finding by a committee of Congress that the railroads were underpaid for carrying the mail; the overwhelming defeat, by popular vote in Missouri, of the so-called "extra crew" law and the favorable decision in the five per cent increase rate case.

All these events may, in a measure at least, be traced to railway publicity and disclose an inherent desire on the part of the American public to play fair if fully informed regarding the true facts in any given controversy. To keep the public properly informed, however, is the all-important task which railway management has now to face. On the success of the effort largely depends the future prosperity of the country's railways.

As George D. Ogden, general freight agent of the Pennsylvania Railroad, recently said in a public statement:

> The railroads rejoice over the prospects of a better understanding, underneath which will de-

velop and quite naturally, a bond of commercial sympathy that should prove of advantage to all concerned. Prosperity for one of the contracting parties cannot endure for any great length of time to the exclusion of reasonable participation by the other. There was prevalent among so-called legislators for some years, the mistaken idea that the transportation candle could be lighted at both ends, the one representing increased expenses and the other decreased earnings, without apparent concern of the inevitable loss to all lines of commercial endeavor. Of late, there has been evidence of an awakening of public opinion in favor of fair play for the railroads, with assurance from the administration.

We are thankful it is now ebb tide of agitation, leigslation and stagnation, with cheerful sounds of approaching prosperity for manufacturers and railroads alike. They should ever in the future go hand in hand after this sad experience.

It is said of Senator-elect Harding, of Ohio, that during the recent campaign he announced from the stump that any man who expected him to work against the railroads had better not vote for him.

Mr. Ogden's words will find an echo in the hearts of all those interested in the maintenance of a progressive transportation plant. While much has been accomplished, only an unflagging effort will produce the results which are necessary to insure so happy a solution of the present railway problem.

A hopeful sign of the times is that the railways no longer war among themselves as they did in olden days. Confronted with problems common to all, they are showing a sympathetic action, and when this influence can be applied more directly upon their publicity efforts, the public will regularly be supplied with information which will prove vital to a proper understanding and fair judgment of the difficulties which must be overcome in order that their freight shall be transported promptly and economically.

A SUGGESTION FOR IMMEDIATE RAILWAY RELIEF

L. J. Spence, director of traffic of the Southern Pacific Lines, has recently issued a statement in which he points out the way, in his belief, by which the railroads may be afforded an immediate measure of relief from one of the burdens that are crushing them. His suggestion in brief, is for Congress to repeal that provision of the interstate commerce law which empowers the Commission to suspend all advance rates before they become effective. To quote from his statement:

> The Interstate Commerce Commission is authorized by law, either upon complaint or upon its own initiative, to suspend for a period of ten months any advanced rates that may be filed by the carriers. This imposes a responsibility upon the Commission which is met by suspending practically all advanced rates that are filed, pending a hearing so that, even though the increased rates are justified and eventually approved, the carriers are usually deprived of the revenue that should accrue to them during a period of ten months.
>
> The President seems to recognize the urgent needs of the railroads and the extent to which the entire business of the country is dependent upon their prosperity, but hesitates to exercise any influence over the findings of the Commission. However, if he desires to afford the railroads an immediate measure of relief, it is within his power to send a recommendation to Congress to repeal that provision of the law which empowers the Commission to suspend all advanced rates before they become effective. Under existing practices the railroads are considered guilty of extortion until they prove their innocence and may suffer starvation while awaiting the sustenance to which they are eventually found to be entitled.
>
> My suggestion affords adequate protection to all interests. First, it relieves the members of the Interstate Commerce Commission of the responsibility of authorizing increases in rates which they are naturally reluctant to assume; and by requiring the railroads to assume the initiative in rate making, leaves the Commission unprejudiced in future hearings upon complaints of any rates involved. Secondly, the power of the Commission to award reparation will assure the merchants the benefit of former rates from the date they were advanced, whenever the Commission, upon complaint, finds that the increases are unreasonable and orders the former rates restored. Finally, it contemplates a simple measure of justice to the railroads in giving them the immediate benefit of the revenue accruing from advanced rates to which they are entitled, without any prejudice to the interest of the shippers.
>
> The recognition of investors that the railroads have no power to increase their rates sufficiently to meet constantly increasing expenses and yield a sufficient return upon their property to provide facilities, improvements and extensions is responsible more than anything else for the prevalent lack of confidence upon which the depression of business is founded, and it is within the power of the Administration and Congress to contribute to the restoration of confidence and prosperity by the adoption of this suggestion.

RAILWAYS HOPEFUL AS NEW YEAR OPENS

Encouraged by the recent decision of the Interstate Commerce Commission granting increased rates to Eastern carriers, as an indication of a changed attitude in regulation, railways of the United States enter the New Year hopeful that a new era is dawning and that 1914 may be the last of the lean years.

Operating approximately 3,800 more miles of railway than in the preceding twelve months, the railways during 1914 sustained a loss in net revenue, after payment of operating expenses, of over $74,000,000. After meeting the incessantly climbing item of taxes, which during the year just closed contributed nearly $8,000,000 more than in 1913 to the rising cost of railway operations, the loss in net operating income for 1914 by comparison with 1913 was close to $82,000,000.

With the figures for November largely estimated, and those for December wholly so, the Bureau of Railway News and Statistics, Chicago, makes the following estimate of the income account of the railways of the United States for the calendar year 1914 in comparison with that of the preceding year:

	Calendar Year 1913	1914	Decrease
Average Mileage	251,277	255,100	* 3,823
Operating Revenues	(a)$3,181,177,000	$2,993,732,365	$187,444,635
" Expenses	(a) 2,270,266,000	2,157,115,493	113,150,507
Net Operating Revenue	$910,911,000	$836,616,872	$74,294,128
Tax Accruals	135,321,000	143,000,000	7,679,000
Net Operating Income	$775,590,000	$693,616,872	$81,973,128
Per Mile of Line	$3,087	$2,718	
" " " " 1912		3,299	
" " " " 1911		3,161	*Increase
" " " " 1910		3,344	
" " " " 1909		3,441	
" " " " 1908		2,869	
" " " " 1907		3,359	

(a) NOTE: The figures for gross revenues and expenses are not strictly comparable because since July, 1914, the official reports have included "outside operations" on both sides of the ledger. This, however, does not affect the net results.

January found the tide of railway gross earnings rushing downward on the violent ebb which had commenced in the month of October, 1913. Following its example every succeeding month, with the single exception of March, showed a heavy loss compared with the year before. Losses reached almost to $24,000,000 in February and well over $25,000,000 in May.

In spite of the most vigorous efforts to restrain expenses and bring them into harmony with the falling tide of traffic it was not until January, 1914, that first success was attained in a reduction of less than $4,000,000 in operating expenses against January, 1913. As gross had fallen over $16,000,000, however, the assistance was relatively small and net dropped almost $13,000,000.

With the exception of March, a similar experience marked the succeeding months, heavily contracted business being incapable of movement at anything like correspondingly contracted cost. August, 1914, the eleventh month of the downward trend in business, had arrived before the persistent struggle met with sufficient success to score a larger saving in expenses than the corresponding loss in gross earnings, so leaving some gain for net.

Outbreak of the European war, however, again completely upset calculations, bringing in its train a renewed downward trend to gross earnings, all the more serious because showing losses from the already poor figures for 1913 with which these late months compared. Expenses, it is true, reflected large contractions in these late months, But the comparisons here also were with the very poor showings made in the closing months of 1913.

The situation of these last few months is seen by comparison with two years ago, before the drop in business began. Compared with 1912 the figures for 1914 show a loss of $124,410,000 in net operating income notwithstanding an increase of 7,000 miles of line representing a capital expenditure of at least $520,000,000.

COURAGE

Warfare does not always produce the greatest heroes or present the highest example of real courage. Recently at West Orange, N. J., a fire occurred which meant the temporary loss at least of many millions of invested capital and business to a one-man enterprise. The shoulders of Thomas A. Edison, however, proved broad enough to sustain it and his supreme courage and faith was demonstrated to a wondering world when, standing in the glare of the flames which were rapidly destroying his extensive plant, he delivered the following laconic message:

"Am pretty well burned out but to-morrow there will be some rapid mobilizing when I find out where I am at."

Mr. Edison is sixty-eight years old, but he stands as a glorious representative of undefeated manhood with an abiding faith in the unlimited possibilities of a great country, in which he is so distinguished a citizen. Already new buildings are rising from the ashes of the old and in a short time his great plant will again be under full operation giving employment to thousands of contented and grateful workmen.

Loyalty of his employes has proved one of Mr. Edison's best assets in the rebuilding, and while much overtime has been necessary in the rapid reconstruction developments, the employes engaged in this work have steadfastly refused to put in overtime slips or to accept a New Year's bonus from the "boss." As for the 7,000 employes who were temporarily thrown out of work, there has yet to be heard, from a single man, a hard luck story. In fact, this army of the unemployed only recently presented Mr. Edison with a token of their regard in the shape of a huge floral offering, while standing outside of his laboratory they cheered him to the echo.

Such an example is inspiring, and perhaps those who have more nearly followed it within recent years, have been the men entrusted with the management of our vast transportation interests who have steadfastly refused to accept defeat by a prejudiced public and unfriendly regulative and legislative bodies. Through courage, perseverance and honesty of purpose, they have finally been able to impress the people with the righteousness of their cause and to force regulators to begin, at least, to correct those tendencies which were rapidly reducing the entire industry to a state of impotency.

Mr. Edison, in a recent public statement, had the following to say with reference to the transportation situation:

> The railroads have come around all right. It's up to the railroads to lead the way—and I believe they are doing so. Every shipper knows that if the railroads prosper, business will prosper. Public opinion has been for the railroads for the last six months. They've got their freight increase. I'll have to pay more freight, but I advocated the freight raise.
>
> Suppose they were guilty of misdeeds. Let them start on a new slate. Let's have prosperity. Let the railroads earn enough to give us prosperity. They are entitled to a just return on their investment.

That the influence of the Commission's decision has already been felt is evidenced by the fact that the Baltimore and Ohio Railroad has already made a statement that it is to put into immediate execution, long delayed plans for betterments and extensions involving a total outlay of $30,000,000. Other railways are preparing to make good their promises that favorable action by the Commission would be reflected at once in improved industrial conditions. How far they will be willing to go, however, before they are guaranteed some relief from the unreasonable and expensive orders of various state railway commissions, is a question which yet remains to be settled.

In a recent frank discussion of the situation between President Wilson and leading railway executives, and which President Rea, of the Pennsylvania Railroad, and Mr. Willard supplemented by correspondence, the point has been developed that the conflict of the jurisdiction between the various state utility and railway commissions is the problem which now worries the railway heads more than any other question.

It is believed, that if the state commissions will follow out the recommendations and observations of uniform and general application made by the Interstate Commerce Commission in its two opinions relative to the five per cent rate case, much conflict can be eliminated, but if not, the carriers will be forced to take some concerted action which may result in a summarization of the conflicting orders and regulations in the different states through which their lines pass, in order that the public may become familiar with the difficulties and uncertainties to which they are subjected under present conditions. A thoroughly aroused public opinion should mean either the elimination of these state commissions or a readjustment of their activities in greater harmony with those of the national body.

A GREAT ACHIEVEMENT AND A VITAL PROGRAM

The railways of the country could well emulate the example of the Railway Business Association in its efforts to produce a public interest in the problems which affect railway development. This Association's concerted action of the past half decade has undoubtedly borne fruit and the influence of its effort has been felt by the public, in legislative halls, and by those whose duty it is to regulate both state and interstate commerce. Having no ax to grind other than the desire to see the railways fairly prosperous and efficient, their statements and arguments have received the attention and study which their importance warranted, and the addresses which have been delivered at their annual banquets in support of a liberal and constructive railway policy, have been widely circulated and read in many sections of the country.

This live-wire organization includes within its fold some of the greatest business enterprises of the country. That cowardice or pessimism is unknown to its members is well evidenced by the fighting spirit which has been manifest since its very birth. The following statement sent to the members, by its president, George A. Post, on New Year's eve, is only another indication of the progressive spirit which rules the organization, and its ability to continue to fight until the railway situation is such as to permit a free development of the plant:

To the Members of the Railway Business Association:

A great success has rewarded the efforts of those who year in and year out have urged upon the public the needs of the railways. Members of the Railway Business Association face 1915 with heartening reasons for hope and for energy in the task to which they have put their hands.

An event of the first magnitude is the sanction of horizontal rate advances by the Interstate Commerce Commission. That decision induces a contagion of courage in the minds of those who provide capital for making facilities larger and better. But it does more. It is a sign of the public temper and of the possibility of realizing popular demand in official action when what is demanded is fostering encouragement. It means that now is the appointed time to press on for solution of other broad phases of railway regulation.

What the rate decision may yield in cash to the roads or in immediate purchases of material nobody can estimate. That will depend upon circumstances beyond the control of governmental regulation. What it signifies in the long view is clear and of potent consequence.

Financial condition of railroads is definitely recognized and for the first time specifically and practically acted upon as the prime and sufficient consideration in deciding general rate advance cases. It does not follow that whenever a railroad, from whatever cause, pleads poverty, it is to be rescued by rate increases. Proof of need is presented by averages for all the roads of a region, the most prosperous tending to keep up the level of average income shown and the least prosperous obtaining in relief at the greatest not what they need but what the average roads needs. Bearing this in mind it may be said that the Commission has set a precedent for granting rate increases when the roads "need the money." In other words, the law was made for the people, not the people for the law, and the general welfare is understood and declared to be included in the policy which Congress has delegated to the Commission to administer.

General rate advances are recognized as immediately desirable when financial necessity is urgent, even though there are imperfections in the rate structure thus horizontally raised. Such alleged improprieties in rate relations and in practice are left to be corrected by the Commission in regular course.

Railway credit is recognized as the ultimate test of financial condition and the test applied and acted upon before the roads are in extremity. The Commission analyzes dwindling surplus, emphasizes drain upon capital supplies and declares: "If we are to set rates that will afford reasonable remuneration to these carriers, we must give consideration to the increased hire of capital." By specifying the war as a factor likely to make "the financial problems of the carriers much more acute," and granting relief forthwith on that ground before the injury is fully demonstrated, the Commission adopts the policy of strengthening credit at the time when its impairment is clearly threatened. The Commission declares that there should be and is not now a "concomitant variation" of operating expenses and operating revenue; that "some important items of cost have become relatively inelastic," and that, "We can not view with favor any attempt to obtain an increase in net revnue through unduly restricted expenditures upon maintenance." The Commission quotes from a former decision: "Our railroad management * * * * should have such encouragement as would attract the imagination of both the engineer and the investor."

Reference to alleged shortcomings of railway management past or present finds no place in the decision or in the dissenting opinions. This means that while railways will be held to a strict accountability, the managers as a whole are to be dealt with like any other group of citizens, and specific questions discussed on their merits without prejudice. In this attitude the Commission now manifestly has the endorsement of the general public, which has come to understand that in railway prosperity the whole nation has a common stake of enlightened selfishness. It justifies the optimism of those who have predicted that sober second thought would lead the people to favor regulation which encourages as well as restricts.

Railway regulation, in short, is lifted to a plane in which for its routine function it rectifies inconsistencies and improprieties more or less minute, but for a supervening and always present function rectifies from time to time the level of the whole regional rate structure. It is precisely this policy of regulation which it has been predicted could not be established in the United States, and the significant phase is that public opinion instead of revolting against it when adopted had manifested eager acquiescence in advance.

From the acquiescence of the public and of its official representatives in a new view of rate regulation, to which the members of the Railway Business Association have devoted their energies and influence, turn to the category of remaining problems concerning which popular sentiment has seemed quite as but is probably not more deep rooted. Can an adjustment be reached between federal and state regulation? Can the United States Government be persuaded to pay the railways just and reasonable rates upon service fairly and impartially measured for carrying the mails? Can state legislatures be prevailed upon to delegate and leave permanently to commissions the adjustment of details in such matters as size of train crews, safety appliances, convenience of passengers and shippers and other problems which require elastic regulations and continuous discretion of specialists and which involve expenditures? Can local communities be led to punish trespassing upon the railroad right of way and thus reduce the unnecessary deaths and injuries due to this cause from the frightful American total to the practical immunity obtained in other countries?

It is a difficult program, but not an item upon it seems at this moment as desperate as did the cause of the national rate policy only a short time ago. There is ample warrant for us to gird us anew and do our utmost to make these things clear to a public which has demonstrated its willingness to listen and its capacity to be convinced if what is urged rests on facts and if presented in understandable form by neighbors and fellow townsmen who have studied the subject. Such is our task. We enter upon it with enthusiasm and sound the call for action confident of energetic and self-sacrificing support from a membership which will be twice enriched with the restoration of stable prosperity—first in their material well-being when the railroads are enabled to thrive and grow with the needs of a thriving and growing country, but also in that civic pride and satisfaction which will be ours in having participated in the winning of such notable victories of peace as the achievement registered in the decree of December 18.

GEORGE A. POST, *President.*

WHAT RAILWAY PROSPERITY MEANS

The public is prone to believe that, for the sake of argument, railway officials exaggerate in stating the effect of railway prosperity upon general business conditions. As a matter of fact the wide influence of railway activities upon practically every other industry is but little appreciated.

Not only are railway securities held by a great army of private citizens, but by banks, insurance companies and like organizations to such an extent that their abnormal depreciation would effect, in innumerable instances the solvency of such institutions.

This, however, is only one branch of the railway influence. It is also felt in the great army of employes who represent an enormous purchasing power; while the supplies which are necessary to conduct and equip a modern railway include almost everything known to industrial life. When the railways are prosperous, these supplies are bought liberally. When railway earnings are inadequate, not only is there a great decrease in the purchase of supplies, but, by the reduction of salaries and the discharge or laying off of employes, this purchasing power is still further reduced.

The capital which is employed simply for the up-keep of the plant reaches totals which are enormous and radiates to all branches of industry. For example, in spite of the fact that last year was one of the worst in the history of railway development, the Southern Pacific expended in the neighborhood of ten million dollars for replacements and betterments. Of this amount, $1,400,000 went for the construction of fifty-one miles of additional double track, forty-one miles of this being on the Sacramento division in the vicinity of the Blue Canon, Gold Run and Lawton and eleven miles being on the Salt Lake division west of Rose Creek. In addition to this, new and heavier rails were laid on 170 miles of existing main line double track at a cost of $900,000. Replacement of fifty-six miles of gravel ballast with crushed rock ballast required an expenditure of another $100,000.

During the last year, the construction of the double track between Sacramento and Benicia was practically completed. To avoid sections of the track across the Yolo basin from being washed out during flood periods, nine miles of track were raised to a sufficient elevation at an approximate cost of $225,000. As a protection for the city of Sacramento against high water, the Southern Pacific, with the city's assistance, constructed new levees and raised existing ones surrounding Sacramento to a height five feet above the water plans. In all, forty-two hundred and sixty feet of concrete sea wall was built and about seven and a half miles of levees. The total cost of this work was about $600,000, of which $400,000 was borne by the railroad.

During 1914, 2,550 steel underframe cars and 300 all-steel cars were ordered by the Southern Pacific. There are also being constructed 15 Mikado passenger locomotives, to cost $300,000; 5 others to cost $125,000; 10 switch engines to cost $125,000; 50 all-steel passenger coaches, to cost $535,000, and one steel postal car to cost $12,000.

With its 1914 block signal work, the railroad now has 3,871 miles of track protected by these electric safety guardians, representing an outlay of almost $6,000,000. It also installed eleven additional interlocking plants at a cost of $105,000, making a total of 89 of these now in operation.

If the Southern Pacific and other prominent roads can produce a record like the above during periods of restricted operation and development, it can readily be appreciated what an effect a stimulation of such activities would have upon the general business conditions of the country.

How far the influence of the American railroad reaches into the life of the private citizen is well illustrated in a work recently prepared by B. C. Forbes, who for a number of years was business editor of the New York *American*, entitled "Personal Comment on Finance and Business." Under the caption of "Who Are the Real Owners of American Railroads?" Mr. Forbes has in part the following to say:

What have the railroads of the United States cost to create?

About $20,000,000,000—the Interstate Commerce Commission's figure brought up to June, 1906, was $14,570,421,478.

Who have supplied this vast amount of capital?

Millions of home and foreign investors, millions of citizens who have paid premiums to insurance companies, millions of depositors in savings banks, millions of persons having accounts in banks, trust companies and other institutions.

How many stockholders are there in American railroads to-day?

Complete official returns are nowhere obtainable, but for many years I have compiled figures supplied me by the principal railroads. Last year seventy-six roads, with a stock capitalization of $5,489,652,616, reported 477,458 stockholders. On this basis a grand total of 750,000 stockholders (exclusive entirely of bondholders) would seem to be a reasonable estimate.

Is the average number of shares owned very large?

No; the average is 115 shares.

Are many persons of modest means holders of railroad shares?

Yes, and the number is constantly increasing. The Pennsylvania Railroad alone has 20,000 stockholders owning less than ten shares each. All the directors and employes combined own one twentieth of the company's stock.

Are nearly all stockholders men?

No—emphatically no. The Pennsylvania has nearly 45,000 women stockholders, almost half the New Haven's 22,500 stockholders are women, and other large companies carry thousands of women on their lists of stockholders. A substantial percentage of these women are widows dependent upon the income for their own and their children's living.

How many stockholders are there in our leading railroads?

Here are the latest official figures, supplied me by the head of each company less than a year ago:

Name of Road.	No. of Stockholders.
Pennsylvania Railroad	90,000
Canadian Pacific	53,000
Atchison	38,000
Union Pacific	27,000
New York Central	23,000
Southern Pacific	23,000
New Haven	22,500
Great Northern	19,000
St. Paul	17,000
Baltimore and Ohio	15,000
Illinois Central	11,000
Southern Railway	11,000
Chicago and North Western	10,000
Chicago Great Western	10,000

How many bondholders are there in American railroads?

The total has never been ascertained, but information may be obtained before long through the Income Tax Bureau.

Are there more bonds than stocks outstanding?

About the same—in round figures, $10,000,000,000 of each.

Are the bonds also widely distributed?

Yes, and becoming more so every year.

Who are the largest owners of railroad bonds?

Well, insurance companies hold upward of $1,500,000,000, savings banks have nearly $1,000,000,000, universities and colleges are heavily endowed with bonds, hospitals derive a substantial share of their income from these investments, estates left in trust for the benefit of widows, minors, etc., are largely invested in bonds.

How many insurance policyholders are there in this country?

Approximately 30,000,000, each of whom is concerned in having the solvency of our railroads maintained.

And how many savings bank depositors?

More than 10,000,000, all dependent to some extent for their interest payments on the profits earned by the railroads. If the railroads do not earn interest on their bonds they cannot pay interest on them, and savings banks cannot pay you interest if they do not earn it.

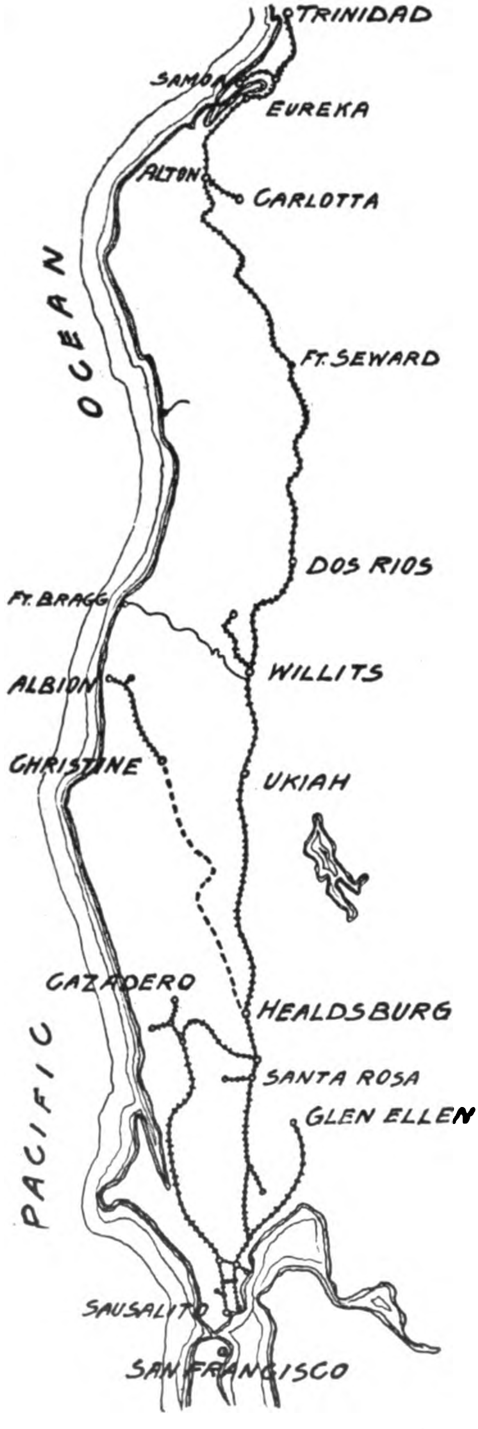
Then, roughly speaking, we are all either part owners of our railroads or affected in some way by the good or ill fortune of the railroads?

Yes, that is the only deduction that can be drawn from the facts and figures here presented.

THE RESULTS OF CO-OPERATIVE EFFORT

There was a time when railways resorted to physical violence in order to keep a competitor out of its chosen field and this was particularly true with regard to new railway construction. A striking example of the higher influence which now controls such developments is forcibly illustrated by the recent completion of the Northwestern Pacific, which runs along the coast of California between San Francisco and Humboldt Bay. The advantages of this line were first conceived in 1903 when the Santa Fe, in casting around for increased tonnage, began to buy the local roads at the northern end of this route. At the same time, however, the Southern Pacific interests, with the same object in view, obtained control of the local roads at the southern end of the route.

Then followed an era of surveys by each road until, in 1906, it was decided to merge their interests into a new company entitled The Northwestern Pacific, in which each road was to have an equal interest. From that time on, work was performed when possible, under the very adverse conditions obtaining in that country. Not only was much of the ground found to be of an unstable character but frequent tunnels were required through jutting points of the river along which the line is built; and a rainfall of about five feet per year, all delivered in a few months, made work practically impossible at times.



Route of the New Northwestern Pacific, the Main Line of which has been Recently Completed.

President Palmer of the Northwestern Pacific Driving the Golden Spike which Completed the Main Line. His Daughter is Holding the Spike, while Captain A. H. Payson, First President of the Road is Shown to the Right of Mr. Palmer Wearing a Cap.

Under the circumstances, the rapid completion of this road shows the great value of co-operative effort both to the country traversed and the interests more directly involved, and the Humboldt Bay region, which is now put in rail communication with the rest of the country, is one very rich in redwood timber, dairy products, apples and salmon.

AN OUTRAGE

Never has the National House of Representatives perpetrated a greater outrage than in permitting the Moon railway mail pay rider to become a part of the Post Office appropriation bill. In passing this bill the House of Representatives has virtually voted authority to the Post Office Department to confiscate the facilities of the railroads. The measure violates all traditions of American fair play and should be opposed by fair-minded citizens. Every railway employe should make it his personal duty to see that the particular Congressman from his district is fully informed as to his attitude towards the proposed rider.

While its ostensible purpose is to establish a plan of payment for the railway mail service which shall be more scientific than the system now in effect, its true purpose, as revealed in debate before the House of Representatives by Chairman Moon, of the Post Office Committee, is to reduce railway mail pay by many millions per year, and, in particular, to force the railroads to carry all the parcel post, in Chairman Moon's own words, "without any additional compensation."

Chairman Moon openly advanced this proposal despite the injustice manifest on its face, and in direct disregard of the finding submitted to Congress last summer, after nearly two years of careful investigation and study, by the Joint Congressional Committee on Railway Mail Pay, under the chairmanship of former Senator Bourne.

The finding of the Bourne committee was that the railroads were, as a matter of right and justice, entitled to an advance of at least $3,000,000 per year for carrying the mails, with relief from certain incidental services now rendered without payment and representing several millons more annually.

Chairman Moon's committee, it is true, recommended to the House an increase of more than $2,000,000 in next year's appropriation for railway mail pay, and embodied this recommendation in the Post Office appropriation bill. But that the apparent promise of the bill and its real object are vastly different things, was made clear when Chairman Moon, on December 19, said before the House:

> * * * * it does not show a saving upon its face, and cannot do it, but only shows an administrative proposition of saving. The saving will occur, as the Department thinks, in the handling of the mails.
>
> In other words, you have changed from the quadrennial weighing of the mails on a weight basis, on which the pay is to be computed, to the space provision, and *you will have enough space under the contract to carry all your parcel post probably without any additional compensation and save many millions annually.* That is their theory.

Again Chairman Moon said, more specifically:

> Does not the gentleman know that the main feature of this bill, the only great feature in it, is the railroad proposition, and does he not know that when he voted as he did he voted against the consideration of that railroad proposition that would save this country eight millions of dollars every year, if carried?

So, the chairman of the House of Representatives' committee, which recommended an increase of $2,000,000 in the appropriation to pay the railroads for carrying the mails, stated on the floor of the House that the bill would save the Government $8,000,000 annually.

Chairman Moon quoted the President of the United States as supporting the rule to consider the mail pay rider of the Post Office appropriation bill:

> I said, and I say it now, and I do not propose to withdraw one single word of it from anybody, that, in my opinion, when the President of the United States and the Postmaster General, when the Democratic Committee on Rules, when the Democratic Committee on the Post Office and Post Roads, asks for a rule to consider legislation that would save to this country millions of dollars, the Democrat who turns his back upon that demand, violates the best interests of the Democratic party.

What President Wilson did say on the question of governmental economy, in his message to Congress, was this:

> I assert with the greatest confidence that the people of the United States are not jealous of what their Government costs if they are sure that they get what they need and desire for the outlay, that the money is being spent for objects of which they approve and that it is being applied with good business sense and management. * * * *
>
> It is not expenditure but extravagance that we should fear being criticised for. * * * * *The Nation is not niggardly; it is very generous.*

And in his letter to Secretary McAdoo, on the occasion of the opening of the Federal Reserve Banks, the President said:

> No doubt, in the light of the new day, with its new understandings, the problems of the railroads will be met and dealt with in a spirit of candor and justice.

The American people should not tolerate withholding from the railroads that fair and just pay for carrying the mails which an impartial and competent tribunal has declared to be their just due.

The railway mail pay rider in the Post Office appropriation bill was not conceived in "a spirit of candor and justice." It is a bald attempt to create a specious show of economy in the operations of one department of the Government by depriving the railroads of a large part of the compensation they fully and fairly earn in the performance of an indispensable public service.

There must be some escape for the railways under such conditions. It is inconceivable that the courts would uphold such a bill should it become a law as it is clearly in violation of the clause of the Constitution which denies the right to confiscate property without due process of law.

Mr. Ralph Peters, president of the Long Island Railroad, and chairman of the Committee on Railway Mail Pay, representing 264 leading railroads operating nearly ninety per cent of the total mileage of the country, has issued the following statement with reference to this latest development:

> By passing Chairman Moon's railway mail pay rider in the post office appropriation bill, the House of Representatives has voted authority to the Post Office Department to confiscate the facilities of the railroads.
>
> Unless the Senate bars its final enactment, the Moon rider will force the railroads, under penalty of $5,000 for each refusal, to carry the mails for whatever the Postmaster General chooses to pay.
>
> Even should he in all cases allow the maximum rates permitted by the Moon rider, railway mail pay will be heavily cut and the present underpayment and injustice to the railroads greatly increased.
>
> Chairman Moon told the House, during debate, that his rider would enable the Post Office Department to "save" $8,000,000 annually out of the already inadequate payments to the railroads for carrying the mails.
>
> The greatest wrong would be done in the case of the parcel post, for the carrying of which the railroads are to-day underpaid not less than 50 per cent, at a loss which will probably exceed $8,000,000 in the present fiscal year.
>
> Chairman Moon apparently wishes to make this underpayment 100 per cent, for he announced in the House of Representatives that his rider would provide the Post Office Department with machinery whereby railroad transportation could be obtained for *all the parcel post* "probably without any additional compensation."
>
> We believe that the Senate has no more important duty in the present session than to see that justice is done in this matter.

Examples could be produced by the thousands showing the absolute injustice now pursued by the Post Office Department in the matter of railway mail pay, but a single case will suffice.

Since the outbreak of war in Europe the Government has shipped nearly 200 tons of gold, worth about $99,000,000, from Philadelphia to New York without cost for railroad transportation.

This was accomplished by sending the gold as parcel post. Railway mail pay provides compensation only for carrying the ordinary mail and includes no specific allowance for such extraordinary service as handling gold transfers for the Treasury Department.

The postal officials nevertheless took the ground that the gold must be carried, without additional payment, under the four-year contract for transporting the regular mails.

This contract, in the case of the railroad over which the Post Office Department routed the gold, called for fixed rates of pay, based on the mail carried in the spring of 1913, when the parcel post was in its infancy and gold shipments had never been thought of as coming within its legitimate scope.

The gold was packed in canvas sacks, each containing $5,000 and weighing a trifle under 19 pounds. Nineteen thousand eight hundred such sacks were carried between the two cities. The postage required, at the ordinary parcel post rates, was $4,554, but this was merely a shifting of funds from one Department of the Government to another.

Had the gold been shipped by express, as has been the practice heretofore, the railroad would have participated in the payments made for the service.

The largest single transfer of the gold consisted of $50,000,000 in double eagles from the Philadelphia Mint. It was divided into three installments, sent on as many successive days.

To convey these 100 tons of treasure 91 miles to New York, the railroad furnished, altogether, four special cars. As an extra precaution, requested by the postal authorities, the cars were detached from the regular trains some miles from destination and hauled the remainder of the way by special locomotives.

Round trip transportation was provided for more than 100 postal clerks and inspectors who accompanied the gold as guards and for each of whom the railway company was obliged to assume the same liability as for a passenger paying full fare.

All of this was done without any compensation to the railroad beyond the regular monthly payment for the routine mail service.

Six subsequent gold shipments over the same route amounted to $49,000,000. In similar manner, $5,000,000 was sent from New York to Boston and $840,000 from New York to Ottawa, bringing the total gold shipped by the Government through the parcel post, and carried at the railroads' expense, to $104,840,000.

It is also of interest to note that during the week from December 18th to 24th inclusive, the Pennsylvania Railroad handled approximately 3,500,000 parcel post packages at Broad Street Station, Philadelphia, and 5,500,000 packages at the Pennsylvania station, New York. At Philadelphia 147 trucks and more than triple the regular force of railroad mail handlers were kept on duty during the week and at New York more than 100 extra mail cars were attached to the regular outgoing mail trains to accommodate the parcel post and other mails. At Philadelphia 30 additional cars were furnished. When it is appreciated that all other important railways of the country were subjected to similar conditions during the holidays and that the carriers will receive no additional payment from the Government for the extra facilities furnished in connection with the Christmas mail, no further examples are necessary to illustrate the grave injustice under which the railways are laboring.

The press of the country have been almost unanimous in their opposition to the unfair manner with which the Post Office Department appears to be determined to deal with the railways and have editorially strongly condemned its present attitude. These editorials being so numerous, it is only fair to assume that they generallv represent public opinion, which as yet, however, appears to have had little effect upon Congress, particularly the lower House. As the Norfolk (Va.) *Virginian-Pilot* recently stated:

> Not only are they [the railroads] denied reasonably adequate compensation for the handling of the increased and increasing volume of mail matter which they are called upon to carry by reason of parcel post introduction and extension, but they lose a comparatively large revenue from the express companies which they would otherwise be drawing.
>
> Obviously this is unfair and altogether unworthy of a great Government, one of whose chief functions and duties is to see to it that the balances are held evenly among all classes of the citizenship, artificial as well as natural.
>
> The *Virginian Pilot* holds no brief for the railroads, but certainly the Governmental authorities ought to recognize, in dealing with the country's agencies of transportation, what must be apparent to anybody and everybody who stops to think—that the interests of the railroads and the public interest are so interwoven that the former cannot be injured without the latter also, and consequently suffering.
>
> And surely a Government which undertakes, and properly so, to compel the railroads to deal justly with the public should not itself set the example of dealing unfairly and unjustly with the railroads.
>
> The authority to compel proper service carries with it the obligation to allow proper compensation for service rendered.

The Washington *Post*, published at the Natonal Capital, and thoroughly familiar with the Post Office and Congressional developments with regard to the carriage of the United States mails, had, on December 3d, the following to say editorially:

> How is it possible for the United States Government to expect a high standard of business ethics from private or semi-public corporations when the Government itself engages in a policy which is palpably unjust?
>
> Under the system of weighing the mails and readjusting railway mail pay only at four-year intervals, every railroad is required to carry the increase in the mail tonnage for four years without compensation.
>
> At the time the parcel post was established, on January 1, 1913, no provision was made to pay for its transportation by the railroads. The railroads had to transport the entire volume of parcel post packages for six months without a penny of compensation.
>
> Such a practice, if engaged in by a big corporation toward a weaker one, would result in prosecution by the United States Government.
>
> Nearly two years have elapsed since the establishment of the service, yet approximately half the parcel post is to-day being carried by the railroads without payment. In the present year alone it is estimated that the railroads will lose $8,000,000 by reason of this unjust practice.
>
> In the collapse of two of the express companies, and the impairment of the business of all the others, the railroads lost considerable business that was profitable. They are compelled to carry the Government's express business at a much lower rate. Perhaps there is justification for this, but certainly there is no excuse for taking $8,000,000 out of the pockets of the railroads each year.

"POSTAL SURPLUS" CHILD OF UNFAIR RAILWAY PAY

Had payments to the railroads for hauling the mails increased only half as fast in the past two years as did the volume of mail carried, the $3,569,545 surplus just reported by Postmaster General Burleson in his annual report for the last fiscal year would have vanished.

To test the postmaster's jubilant announcement that "for the first time since Benjamin Franklin organized the postal service the Post Office Department has been securely placed on a self-sustaining basis," the Bureau of Railway News and Statistics has analyzed the post office reports of the last three years. So-called surpluses for

1913 and 1914 are shown to be wholly the product of phenomenal growth in mail under the new parcel post, accompanied by almost total failure to pay the greater expense of transportation, subjecting the railways to extortion through forcing on them enlarged business at unfair rates. The contrast follows:

	1914.	1913.	1912.
P. O. revenue	$287,934,565	$266,619,526	$246,744,016
Inc'se over 1912	16.7%	8.0%	
P. O. expense	283,558,102	262,108,875	248,529,539
Inc'se over 1912	14.1%	5.4%	
Excess revenue	$4,376,463	$4,510,651	*$17.85,523
Surplus	$3,569,545	$3,841,907	
Ry. mail pay	53,000,000	51,959,387	51,691,301
Inc'se over 1912	2.5%	0.5%	(*Deficit.)

Against a 16.7 per cent two-year gain in business, pay to the railways for service which must have expanded in like proportion was enlarged but 2.5 per cent. With quadrennial weighings roads whose mail tonnage was weighed in 1912 must wait till 1916 to enjoy added revenue from the fast mounting tonnage. By similar repudiation of vital expenses even the most tottering enterprise, of course, might be put on paying basis.

Yet it is a profit so won which the postmaster cites and which is advanced as an argument for government ownership of telephones and telegraph. The 1913 gain in mail revenues followed institution on January 1, 1913, of the parcel post; the 1914 figures reflect a twofold cut in rates and advance in weight limits, August 15, 1913, and January 1, 1914. So enormous were the results that the Postmaster says: "Marvelous growth and development marks the recent history of the parcel post. Although in operation less than two years this service has expanded from an experimental facility of limited advantages into a universal transportation agency. There is every reason to believe that the postal service is now handling more than 800,000,000 parcels annually. On January 1, 1914, the parcel post at once became available for the transportation of a vast quantity of merchandise formerly excluded and was opened to farm products."

With so vast a growth and scarcely any added expense the postal service could hardly escape showing a profit. Parcel post added 15 per cent to the mail ton mileage in 1913 and a still greater ratio in 1914; the railways received therefor 0.5 per cent more pay in 1913 and 2.5 per cent more in 1914. The first year of parcel post added $15,000,000 to mail revenues; the roads later were given a 5 per cent increase, $1,687,360, to do until the regular four-year weighing arrived. It is possibly to this situation the Postmaster refers when he says: "Economies of administration have kept expenses within the revenues. * * * The surplus for the year * * * (is) made possible by economies in administration compared with the volume of transactions."

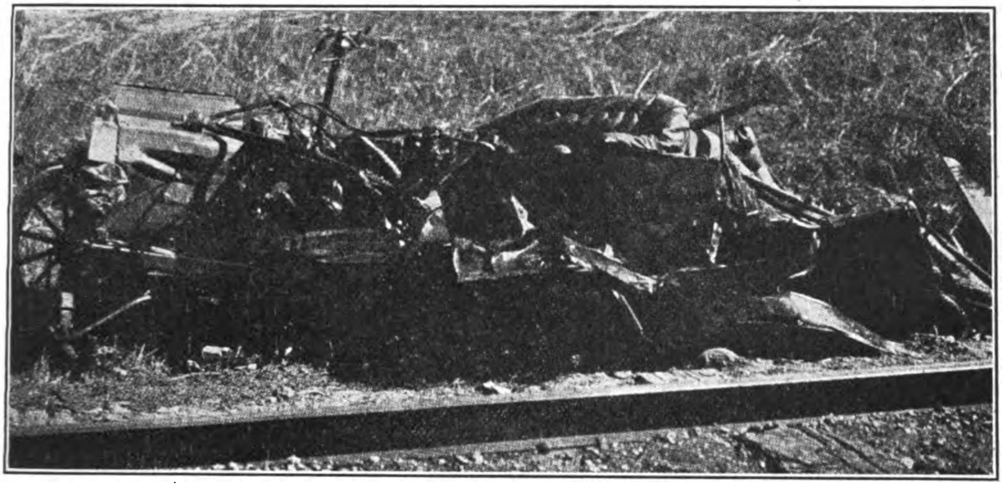
Had the railway pay been a trifle less economical and risen but 9.3 per cent against the 16.7 per cent growth in traffic, the surplus of $3,569,545 would have been wiped out and Benjamin Franklin still would be waiting for a real postoffice surplus. And still the carriers would be unpaid for postal cars up to 40 feet long; for carrying postal clerks; for carrying mails from stations to postoffices or between stations up to ¼ mile, for postal quarters in stations, even for interest on capital invested in railway mail equipment.

The recent Congressional committee on mail pay found it cost the roads 25.49 cents per 60-foot car mile to haul the mails, for which they were paid 20.22 cents. The committee recommended 24.69 cents, admitting even that to be too low; yet the postmaster in his report now ignores this exhaustive investigation and urges the Moon bill, which would perpetuate such ruinously low pay to the railroads for hauling the mails as has made possible the present so-called surplus.

THE COST OF RAILWAY ACCIDENTS

If accidents which occur from trespassing and from the needless carelessness of individuals were eliminated from casualty lists the results would be startling and clearly prove that the American railways are among the safest in the world.

No one denies that the steel coach offers a greater element of safety than the wooden coach and that the railways should adopt this character of equipment as soon as possible. But of even greater importance than the installation of steel coaches, is the necessity for adopting and enforcing adequate laws to eliminate the trespassing evil. Why is it that legislators and public officials, so quick to urge the passage of bills providing for steel passenger car and other railway equipment for greater safety, apparent-



WRECK OF AUTOMOBILE CAUSED BY FAILURE OF DRIVER TO "STOP, LOOK AND LISTEN" AT RAILWAY CROSSING.

ly disregard and neglect an evil which can only be eradicated by some sincere and concerted action on their part. The following table shows the fatalities charged to United States railways during the twenty-three years from 1890 to 1912, inclusive:

	Killed.	Per Cent.
Trespassers	103,566	53.8
Employes through their own fault or mischance	40,497	25.7
Other persons through their own fault or msichance	18,328	9.5
Employes in accidents to trains	13,630	7.1
Passengers through their own fault or mischance	4,210	2.2
Passengers in accidents to trains.	3,302	1.7
Total for 23 years	192,542	100.0
Through their own fault or mischance	175,610	91.2
In accidents to trains	16,932	8.8

The record, as classified, is illuminating, and it would be of interest to know how certain public officials, in view of these figures, would attempt to escape the conclusion that they are immeasurably more to blame for the killing of useful American citizens than are the railways themselves.

Greater safety devices including the employment of steel cars, are developments which should, and do, receive the encouragement of all those working for the conservation of human life, but so long as legislators, commissioners and critics rivet their sole attention on steel cars and other physical requirements, the tale of railroad fatalities will grow along the line of the greatest percentage of causes.

Next to the trespassing evil, the habit of carelessness constitutes the greatest cause of railway accidents. Among railway employes, the greater safety movement is aimed to eliminate, or at least greatly lessen, this cause, but in its application to the general public, the problem assumes a more difficult aspect. The accompanying illustration shows an automobile that was struck by a freight train. The car contained two occupants, both of whom were killed. Had they "Stopped, Looked and Listened," as the sign at the crossing so clearly requested, the accident would have been averted. It is in these directions that the public official can exert an influence impossible on the part of a railway official, and the yearly casualty figures make the question one worthy of his serious consideration.

THE SAFETY OF RAILWAY TRAVEL

Attention was briefly called, in last month's issue, to the remarkable freedom of American roads from accidents which could be attributed either to laxity of management or physical defects.

Such now is the perfection of railway operations that it is not unusual for a great system to report an entire year's operations, without the killing of a single passenger.

Such a statement has recently been issued by the Pennsylvania Railroad covering the year 1914, and in order to appreciate the tremendous accomplishment represented in this safety record, it is only necessary to state that during that year 189,167,326 passengers were carried and 67,389,381 miles covered by the passenger trains. More than one million trains were represented in these operations and the trackage of the system reported, which is that of the lines East of Pittsburgh, covers 26,198 miles.

Other large systems have reported equally perfect records, all of which goes to show that the standard maintained by the railways of this country places them in the front rank of safely operated transportation agencies. It is little wondered that W. Cabell Bruce, general counsel of the Public Service Commission of Maryland, in remarking on the Pennsylvania Railroad's record for 1914, made the following statement: "Personally, I have long felt that there is nothing human that approaches so nearly the movements of the heavenly bodies in point of organization and system, as the movements of passenger trains on those portions of the Pennsylvania Railroad Lines with which I am familiar."

INFLUENCES AFFECTING OCEAN FREIGHT RATES

In view of the strict regulation to which the freight rates of the United States railroads are subjected by both national and state commissions, it is of interest to note how free from such tendencies are the rates charged by transatlantic steamship companies. The only influences affecting these rates are those based on competition and speculation, which naturally lead to very marked fluctuations in accordance with the conditions under which shipments are accepted.

In a preliminary report on shipping conditions, presented to the Senate on December 29 by Secretary of the Treasury McAdoo and Secretary of Commerce Redfield, increases in ocean freight rates since the beginning of the European war are described as having been in many cases "unreasonable and exorbitant." The fact that an inquiry into the matter was being conducted by Secretaries McAdoo and Redfield was made known on December 25 with the issuance of the following statement:

> The Senate has called upon the Secretary of the Treasury and the Secretary of Commerce to report to it all available information about increased ocean freight rates and the scarcity of vessels engaged in foreign trade. This is very important for the business interests of the country, and the Secretary of the Treasury and the Secretary of Commerce will be glad if all shippers who have been affected by the high ocean freight charges and the scarcity of vessels will send the facts promptly to the Treasury Department or the Department of Commerce. The fullest information is desired. Letters already received show that the scarcity of vessels is so great and the freight charges are so high that American foreign trade is being seriously handicapped.

The report filed says:

> In shipping circles it is estimated by some that 50 per cent of the total (foreign) tonnage available has been eliminated through the tying up of the German and Austrian marine and through the commandeering of such a large part of the British marine by the Admiralty. Not only has there been a great reduction in the available supply of tonnage, but on account of the large purchase of war supplies and the great profits which can be derived from shipments to European ports, there has been corresponding increase in the demand for ships. The inevitable result has been a steady increase in the steamship rates.
>
> In addition to the general situation, the question of shipments of cotton and other non-contraband goods to German ports has created an abnormal situation. The shipment of such goods is practically confined to boats of American registry. The supply of boats suitable for this type of shipments is limited.
>
> For the shipment of non-contraband goods to German ports, therefore, American shipowners have been in an extremely strong position, and, as a result, steamship freight rates and steamship charters for such boats have reached extraordinary levels. For instance, one 6,000-ton boat has recently been chartered for the purpose of carrying cotton to Bremen. The charter was of Government form and calls for $1,800 a day from the charterer, or approximately $61,000 a month. It is expected that this boat will make three round trips. This boat will carry approximately 10,000 bales of cotton, and the charter amounts approximately to a freight rate of $3 per 100 pounds of cotton, or, roughly, $15 a bale.
>
> At the present time the freight rates on cotton are the key to the situation and the question of shipments of cotton has been one of the determining factors in the shipping situation. The opening of German ports to American cotton has greatly increased the demand for cargo space, and the result has been a very marked advance in freight rates all along the line.

Rates on cotton from New York to Liverpool, according to the report, jumped from 20 cents a hundred pounds in July to 40 cents in September and 75 cents in December. Rates on cotton to Bremen went from 20 cents a hundred in July to $3 in December. Some of the increases in the rates between July 11 and December 19, 1914, are given as follows:

> Grain, New York to English and European ports, from 4 to 5 cents a bushel to 16 and 17 cents; to Rotterdam, from 6¼ cents to 30⅜ cents.
>
> Provisions—New York to European ports, from $4.87 to $7.30 per ton; to Rotterdam, from 28 cents per hundred pounds to 38 cents. Flour, New York to English ports, from 12 to 13 cents per hundred pounds to 26 and 35; to Rotterdam, from 10 to 55 cents, and to Copenhagen, from 26 to 65 cents. Cottonseed oil, to Liverpool and Manchester, from 97 cents to $1.95 a barrel.

The increased rates, the report says, have in many cases been speculative, and the larger increases have been to European and Mediterranean ports. The general level of rates to South America, South Africa and the Far East, the report points out, "has remained fairly consistent," with the exception of a surtax of 25 per cent to South America and 20 per cent to South Africa. "The only remedy for the present situation," the report adds, " is to increase the available tonnage in order that the increasing demand for cargo space can be partially satisfied." The report is used by champions of the pending Government ship purchase bill in urging upon the Senate the necessity for favorable action on the measure. Senator Fletcher, acting chairman of the Commerce Committee, has filed a report on the ship purchase bill already recommended for action, in which is embodied portions of the information furnished by Cabinet officials. The committee seeks to impress upon the Senate the need of enlarged shipping facilities for adequately taking care of American commerce abroad, and urges that the $40,000,000 Government investment contemplated in the ship purchase measure would soon be compensated for by economies in ocean transportation rates that could be effected.

WHY BRITISH FREIGHT RATES EXCEED THOSE IN THE UNITED STATES

It is a well known fact, now universally acknowledged, that freight rates charged by the railways of the United States are lower than those charged by the railways of any other important nation in the world. The following letter from Slason Thompson, chief of the Bureau of Railway News and Statistics, located at Chicago, to the editor of the *Commercial and Financial Chronicle,* throws an interesting light upon the reason for the difference between the freight rates charged by the railways of Great Britain and those by the railways of this country.

To the Editor of the Commercial and Financial Chronicle, New York, N. Y.:

DEAR SIR.—In your issue of December 26th, on the authority of "a high official of one of the leading British lines," my friend Mr. D. G. Boissevain questions the statements in the address of Mr. W. C. Van Antwerp before the City Club of Rochester that American railways—

"do more work for less money than any in the world,"

and that—

"it costs seven mills, on the average, to haul a ton of freight a mile in America, whereas in England it costs 2.33 cents."

Mr. Boissevain's British friend does not deny these statements but seeks to destroy their force by claming:

(a) That the percentage of high-class freight to total tonnage is very much larger on British than on American railways.

(b) That the average freight haul is much longer here than in Great Britain, consequently the terminal charges are much heavier there than here.

(c) On British railways goods are collected and delivered from and to their destination.

These three causes are frequently given as accounting to a considerable degree for the apparently higher level of British freight rates. Let us examine them seriatim.

(a) British Board of Trade reports for 1012 divide British railway "goods traffic" into—

	Tons.	Per Cent.
Minerals conveyed	401,563,938	77.2
General merchandise	118,715,190	22.8
Total	520,279,128	100.0

A like division for the United States in 1913, so far as reported, was:

	Tons.	Per Cent.
Products of mines conveyed	910,377,009	53.87
All other freight conveyed	779,678,158	46.13
Total	1,690,055,167	100.00

(b) If all terminal charges were deducted from the British rate, the ton mile rate would still be double the American rate. In New South Wales, where they separate the terminal and line charges, the former amounts to one seventh of the whole. In Great Britain if this charge amounted to one third it would leave the rate 1.56 cents, against .75 cents in the United States, including the terminal charge.

(c) The "collect and delivery" service on British railways does not extend to 15 per cent of their tonnage, the remainder being "station to station" traffic. Moreover, nearly one half of the total tonnage is hauled in "owners' wagons" or "traders' trucks," for which the railways receive a regular haulage rate. This more than offsets the cost of collecting and delivering.

Generally speaking, the main reason why British railway freight rates are higher than American is to be found in their excessive capitalization per mile of $275,000 to our $64,000, and the small units in which freight is moved.

Mr. Van Antwerp was well within the mark when he said that American railways "do more work for less money than any (railways) in the world."

SLASON THOMPSON.

AMERICAN RAILROADING IN ENGLAND

It will be remembered by some of our readers that Henry W. Thornton, formerly general superintendent of the Long Island Railroad, accepted a position as general manager of the Great Eastern Railway of England during the early part of 1914. One of the first things Mr. Thornton did in his new work was to introduce methods for giving publicity to reports of accidents. In doing this, he was of course only following the practices of the Pennsylvania Railroad and a number of other important railway systems of this country.

These methods, although apparently new to England, have been received with marked favor and Mr. Thornton has already established for himself an enviable reputation which we feel confident he would be the first to admit is the result of his application of the American railway principles. As the *Philadelphia Inquirer* of January 5th, remarks editorially:

> Less than a year ago an American manager was hired by a railway company in England to come over and take complete charge. He was given a free hand, and he made the dry bones rattle. It is said that Great Britain never knew such excellent train service as this American furnished for the transportation of troops at the beginning of the war.
>
> But now he has made the hit of his career by insisting on publicity. On Saturday there was a bad wreck on the line. Usually the reporters have harder work to get the facts about such an accident than a burglar has in getting out of jail. To the surprise of the newspaper fraternity the American manager welcomed all of the reporters and photographers, gave them every facility and helped them to the extent of his ability in getting information. This was a rude shock to ancient traditions, but it has made an excellent impression. The manager takes the ground that it is useless to try and conceal unpleasant facts, and he wants the public to get all the news and forget it as soon as possible.
>
> This is more or less the American plan. Those railway managers in this country who follow such a course of action escape with the least censure. The public does not expect the unattainable. It knows accidents must come, but it wants to be assured that they are as few as possible, that great precautions be taken and that the same kind of accident does not happen twice. Great Britain has its share of accidents and it will enjoy the new system of learning all about them with such palliation of responsibility as the corporations may furnish.

Contemporary Opinion

Railway Mail Pay.

WE refer in another section of this issue to the unfair treatment of the railways by the Post Office Department, by which the former are underpaid annually many millions of dollars in the transportation of the mails. We reprint herewith a few of the newspaper editorials which have recently been published with reference to this matter. They represent only a very few of those which within recent months have severely criticised both the Post Office Department and Congress in their attitude on the question of properly compensating the railways for transporting the mails.

THE "POUND OF FLESH."

New York, N. Y., "Commercial,"
December 15, 1914.

Postmaster General Burleson is entitled to credit for making progress, but when he claims that the books of his Department show a surplus for the second consecutive year of his administration, he does no more than prove that the books are wrong and that such a system of bookkeeping would disrupt any business man or private corporation.

Added to these old bookkeeping sins we now have the existing robbery of the railroads of the country. One of the chief features of this report is the enormous growth of the parcel post service, and it appears to have been run at a profit. But how has this profit been earned? The railroads answer sadly that it has come out of their treasuries. They have been compelled to carry all this great increase in mail matter without adequate compensation.

The Post Office Department has exacted its pound of flesh by making the railroads carry the additional mail matter for practically the money which they agreed to accept for carrying the mails before the parcel post service was established.

The railroads also lost the revenues they formerly got from the express companies for carrying small parcels that now go by post; so they are underpaid for what they do and lose what they formerly received at the same time.

A "SQUARE DEAL" NOW IN ORDER.

Philadelphia, Pa., "Record," December 22, 1914.

The Interstate Commerce Commission in its first rate decision declared that the railroads should make every department of their business contribute proportionately to their earnings, and counsel for the Government in their argument of the case granted that the transportation of the mails by the railroads was "unremunerative."

The Postmaster General has advanced the proposition that such transportation being distinctly a public service, the railroads should not expect to make a profit out of it; but there is no obligation, legal or moral, that the railroads should conduct this branch of their business at a tremendous annual loss—a loss which is steadily increasing, moreover, through the growth in volume of parcel post matter.

The reform proposed in the postal appropriations bill may not provide adequate relief; but amendments will be in order so that it will be possible for the railroads to get a square deal.

NO CAUSE FOR BOASTING.

Baltimore, Md., "Sun," December 15, 1914.

Mr. Burleson himself admits that the Government has not been paying the railroads a fair rate for carrying the mails, and recommends a change in the basis of compensation, and it is conceded on all sides also that they have been imposed upon in connection with the additional duties required of them under the parcel post system.

Whether Mr. Burleson's surplus would disappear if he paid properly for this work we do not undertake to say, but it would certainly be very considerably reduced.

A surplus that is obtained by making other people lose money is not the kind of a surplus to brag of, and we hope that Mr. Burleson will get very strongly behind measures which will remove this injustice, whether it brings him into debt or not.

It is just as dishonest for the Government to cheat the railroads as to cheat an individual.

WHAT THE TAXPAYERS WANT.

Norfolk, Va., "Virginian-Pilot," December 18, 1914.

Postmaster General Burleson, in his annual report, declares that, "for the first time since Benjamin Franklin organized the postal service under the Continental Congress, the Post Office Department has been securely placed upon a self-sustaining basis."

Taken at its face value, this statement is both gratifying and encouraging; but is it altogether certain that it is entitled to be so accepted?

Has the result effected been brought about with due regard for, or at the expense of justice to, the railroads in the matter of proper remuneration for carrying the mails, which have largely and steadily increased in bulk since the inauguration of the parcel post?

If the former, then Postmaster General Burleson has every right to point to the accomplishment with just pride, and the public to view it with general gratification; if the latter, then exactly the contrary is the case.

Leaving altogether out of account the question of justice and fair dealing, which should be sufficiently compelling in itself, and considering the matter from the standpoint of economy alone, the taxpayers of the country are obviously immeasurably more concerned that transportation facilities shall be kept up to that degree of adequacy necessary to the proper promotion of progress and prosperity than that a few million dollars a year should be saved to the public treasury.

HISTORY REPEATING ITSELF.

New Haven, Conn., "Journal-Courier," December 15, 1914.

It is not easy to read good naturedly the part of the (Post Office Department) report which states specifically that the Department shows a surplus of $3,600,000 for the fiscal year.

When we came to examine the equally jubilant report made of a surplus account in the Post Office Department by former Postmaster General Hitchcock, we found it a fanciful entry. It is the same with this report of General Burleson's.

Just exactly what the figures would be if the Post Office Department paid the railroads of the country a fair price for the services given in carrying the mails, we do not know. We do know, however, that in the case of the New Haven System the loss to that company netted $600,000.

It does not take a very large knowledge of post office statistics to imagine what the report would have been had these items, as they affect all of the railroads of the country, been included in the report. We should have had gloom in place of joy.

"UNPAID MAIL BILLS."

Watertown, N. Y., "Standard," December 23, 1914.

Although the railroads are hauling parcel post mail at a loss of $8,000,000 a year, the Administration has asked Congress to compel the railroads to carry a part of that matter at rates lower than shippers pay for ordinary freight.

It takes some nerve for a Postmaster General to report a profit in the administration of his Department when he pays half rates for transportation.

The Government is great on the morals of private enterprise. What do the people think of the Administration's business ethics?

A CLEAR CASE.

Johnstown, Pa., "Democrat," December 16, 1914.

If the railroads have demonstrated one fact it is that they are underpaid for handling the parcel post business.

The Post Office Department shows a surplus for the fiscal year. If this surplus has been acquired at the expense of the railroads it has been dishonestly acquired. For the Government to rob a railroad is not a bit more reputable than for a railroad to rob the Government.

TAKING UNFAIR ADVANTAGE.

Des Moines, Iowa, "Capital," December 29, 1914.

The Government has been fully aware that when the mails were weighed the last time the parcel post had not been introduced, but the Government appears to be willing to make money off the railroads by taking advantage of an old contract.

If this work were done by an individual it would be called "crookedness." Yet the Post Office Department has the nerve to boast that the Department is on a paying basis!

We do not believe any Government is justified in treating any corporation or corporations the way the Post Office Department has and is treating the railroads.

"A False Showing of Profit."

Peekskill, N. Y., "Evening News," December 31, 1914.

We do not believe that the American people stand for injustice or unjustice to anybody, and one thing they would like to see is the establishment of the parcel post system on a fair business basis.

So far the Post Office Department has been able to make a false showing of profit largely because the railroads are not paid for carrying the extra weight of parcels involved in the parcel post.

Attempts are being made in Congress to readjust railway mail pay, but they appear to be dictated by a spirit of petty politics rather than fairness. The latest effort has been made through a rider on the Post Office Appropriation Bill, which is not the place for legislation of that kind. Riders on appropriation bills ought not to be allowed.

Robbery By Government.

(From the "Railway Employes' Journal.")

ROBBERY, pure and simple, is the phrase applied to the government's treatment of the railroads as to pay for carrying the mails. The only trouble with the phrase is that it is too mild.

And the Moon Bill in Congress, backed up by the all-powerful post-office department, purposes to make the robbery worse and meaner. The bill has passed the House and the only hope of the railroads is that the Senate will refuse to endorse the infamy.

Already the roads are carrying the mails at a loss of $9,000,000 a year. A fair estimate is that they get back only half the cost of the parcel post service. Chairman Moon of the House Post-Office Committee added a "rider" to the bill—and slipped it in without giving the roads a hearing—whereby, as he declared, the department would save $8,000,000 more out of its payments for mail haulage. This "rider" penalizes any railroad $5,000 for refusal to carry mails at whatever price the Postmaster General sees fit to pay.

This is simply confiscation. It is worse than anything yet proposed. Former President Taft asserts that the roads have not been given "appropriate compensation." Even Brandeis, the railroad-baiter, calls railway mail pay "inadequate." President Wilson has asked that the railroads be dealt with "in a spirit of candor and justice."

But the Post-Office Department is determined to make the railroads provide a "surplus" for it, even though it bankrupts them. What's "adequate compensation," what are "candor and justice" among political bureaucrats?

What Increased Rates Do.

(From the "Railway Employes' Journal.")

THE thing we railroad workers want to know about the increase in freight rates is what it does for us or to us. Apparently it means more jobs, full time and full pay—and that means happiness in thousands and thousands of railroad homes that have been pretty sad and blue for a good while. It means plenty of coal and food and clothes where those things have been getting scarcer month by month; it means another start in life and a new chance for many American families that have suffered most of war's terrible privations without any of war's accompanying sympathy and relief.

Thousands on thousands of decent American men are already back at work long denied them; more are going back. Thousands on thousands of home-keeping, home-loving American women are resting weary souls in the promise and fulfillment of better railroad times and taking heart again for their terribly complex and difficult business of just living. These and their children know little or nothing about the Interstate Commerce Commission or freight tariffs, but they do know what "back to work" orders mean and they do understand the happy significance of "full time."

Business, big and little, cries "Hurrah!" over it; American journalism shouts "Good!" in big type; the public approves; railroad owners, managers and workers lift up their heads and gird their loins with the new hope and courage it inspires.

Only a few are sore and sorry—the few government ownershippers, demagogues, professional railroad baiters and political wreckers. And we railroad workers can afford to care as little for these few as they care for us.

The Maturing Obligations of the Railways.

(From the "New York Annalist.")

OVER $860,000,000, including $581,000,000 by the railroads alone, must be found by corporations in this country to provide for obligations which mature during 1915. It is not, however, a question of getting that much new capital. If it were, the task would be very much harder than it actually is. For every dollar of maturing obligations paid off a dollar becomes available for reinvestment. That is the other side of the picture. The reverse of the first statement is that investments to the amount of $860,000,000 will be paid off this year for which new uses will have to be found. Much of it in the ordinary process of the investment market will find employment in the very securities which will be put out to care for those falling due. It is a question of rate of interest rather than a question of supply of capital alone. There are some signs that borrowers in better credit will have good opportunity to place long-time obligations advantageously, a word that must necessarily be used relatively. If the opportunity is offered and is availed of to get rid of a great part of the short-term obligations upon which capital for permanent works has been raised on such a large scale in late years, the whole structure of the investment market will be strengthened. To too large an extent has capital for railroad improvements and for other similar purposes been sought in the money rather than in the capital market.

"Gagging" of Employes by Railway Mail Official.

(From the American Federation of Labor and News Letter as reported in the "L. F. and E. Magazine.")

SENATOR BORAH scathingly denounced General Superintendent Stephens, of the Railway Mail Service in the Senate because of a threat alleged to be made by that postal official in a speech at Indianapolis, declaring he would summarily dismiss any of his clerks if they signed petitions for the enactment of the Borah Bill to prohibit the "speeding-up" system in the postal service.

"A mere petty, impudent, time-serving, slavish, coarse-grained, cowardly attache of bureaucracy; and arbitrary, bullying, vicious and unconscionable over-employe of the Government," were some of the strong terms used by the aroused Senator in describing Stephens.

"A man loyal to our institutions, sensitive in the slightest degree to the admonitions which come to those who would see them preserved, will respect the rights of the humblest and most dependent as quickly as the rights of the strong and the powerful. One who would brutalize the feelings of those who can not, except at great cost, protect their interests is to be distrusted, for he possesses neither the sense of justice nor the conception of manhood indispensable to a trusted employe of the Government. These men, sir, are under him; they are at his mercy. The civil-service law would be futile to protect them for, entertaining such narrow, vicious and vindictive feelings, there is no falsehood he would not father, no slander he would not propagate to bring them within the rules of the civil service and within the pale of his splenetic and revengeful purpose."

Continuing, Senator Borah said: "If there is one argument, however, which stands out strongly in favor of this bill, it is that these men are to be speeded up and tested under the supervision and gaze of a man who seems to think that they are slaves and subjects, the despised dumb cogs in a vast machine, to be worked to the limit, and when worn and broken to be kicked into a junk pile as refuse and waste."

In spite of the fact that postal employes have a statutory right to organize and to petition Congress, as set forth in the Lloyd-LaFollette Bill for which the A. F. of L. fought, through the Sixty-second Congress, Superintendent Stephens is quoted as saying in a banquet speech in Indianapolis: "And let me tell you that anybody that signs that petition (Borah petition) with that statement is up before the general superintendent of this service for removal for lying. Tell your fellow clerks that. I do not think any of you gentlemen signed that petition, but whoever signs it is going to come up before the general superintendent for removal. I have the power and the authority and the inclination and the decision to remove that man from the service."

Following the Stephens threat at Indianapolis, Senator Borah received many letters from clerks who signed the petition asking that their names be removed because of the fear of dismissal. Senator Borah refused to insert these names in the Congressional Record for the reason that he did not want to "subject these men to the surveillance and to the impudent interference of this tyrannizing satellite of bureaucracy."

Unless the utterances of Stephens are disavowed by higher authority Senator Borah served notice that he would go farther with the case.

The Railway Rates Decision.

(From the "London Statist.")

THE Interstate Commerce Commission at the end of last week announced its decision in the matter of the application of the Eastern railroad to advance their rates by five per cent. The decision is more favorable than the previous one, but is still disappointing to the railroads, especially to those carrying bituminous coal, which forms so large a proportion of the traffic of many of the companies. What the effect of the decision will be upon the well-being of the railways has yet to be discovered. It may have the effect of stimulating the officers to find yet fresh methods of economy and to secure by still more efficient working the means of providing for their heavy wages bills, which is evidently what the Commission desire to see accomplished, or it may create a feeling of despondency in the minds of railway officers who have put forth superhuman efforts to effect economy by new methods and by efficient working in the last sixteen or seventeen years, and who consider their railways are suffering injustice from inability to pass on to the public any appreciable portion of the burden imposed upon them by advances in wages and by legislative regulations.

We anticipate, however, that the decision will be regarded as proving conclusively that the Interstate Commerce Commission itself needs to be reformed and brought more into touch with practical life and the pressing needs of the nation, and that a strong agitation will spring up with this end in view. In a recent address before the New York Chamber of Commerce, Mr. Samuel Rea, the President of the Pennsylvania Railroad, gave voice to sentiments which are held both in railway and in banking circles, and which are believed to be supported by public opinion. Mr. Rea's proposals (which we set out on pages 646 and 647) are both practical and statesmanlike, and we do not doubt will eventually be adopted.

The decision concerns those companies operating in what is known as the Official Classification Territory, which includes all railways operating north of the Potomac and Ohio Rivers between the Atlantic Seaboard and the Mississippi, and is a considerable advance upon that handed down by the Commission on August 1st. At that time the Commissioners agreed to permit rates on certain commodities only, excluding coal, coke, iron ore, etc., to be raised in what is known as the Central Freight Association Territory, lying between Buffalo and Pittsburgh and the Mississippi River, and refused to permit any increase whatsoever in the other two sections of the Official Classification Territory, from Pittsburgh to the Atlantic Coast.

Now, however, the decision to allow a five per cent increase in certain rates applies to the whole of the Official Classification Territory. The exceptions to the general advance apply to the rates for bituminous coal, coke, anthracite coal and iron, as well as to the combined railway and lake rates, and to all rates at present covered by unexpired specific orders of the Commission. The carriers of bituminous coal and coke, in the opinion of the Commissioners, are better situated than the other roads, while lake and rail rates are deemed to be already sufficient.

Had the full five per cent increase been permitted on all classes of freight it is estimated the additional revenue thus derived would have amounted to between $45,000,000 and $50,000,000. Until the railroads concerned have gone into the matter very carefully it is impossible to say what will be the benefit of last week's decision, but it is evident that the increase will not give much more than half of this extra income. This increase will, of course, assist the railroads to maintain their revenue, and it is possible that together with the efforts of the companies to secure still greater economy of operation, and with some revival of trade next year, the higher rates will enable the Trunk lines to meet the present situation without any further shrinkage in net income, in profits or in dividends.

The Decision in the Five Per Cent Rate Increase Case.

(From the "Way Bill," Official Organ of the Traffic Club of Chicago.)

THE decision of the Interstate Commerce Commission in the five per cent rate increase case is marred by the exceptions which amount to one-half at least of the total tonnage in Official Classification territory, it may we hope be looked upon as a forecast of a more liberal attitude on the part of the Commission towards the railroads in the future. We note that one of the Commissioners, who dissented from the majority opinion, gives as a reason the fact that the Commission in the original opinion pointed out a number of ways in which railroads in the territory east of Chicago might, by stopping certain practices and modifying others, obtain a substantial increase in revenue without any general advance in rates, which it is stated they have not done. Inasmuch as the railroads did their best to carry out what they supposed were the views of the Commission in the matters referred to, and seeing that, as above stated, the tariffs making these changes were immediately suspended it would hardly appear as though this argument against the advance were a valid one. However, whilst the railroads have not been granted all they asked for, the decision will give a considerable amount of satisfaction not only on account of the substantial increase granted but also as a harbinger of better things in the future. Furthermore, it is quite possible that some of the tariffs now suspended may be finally authorized when the Commission has been able to hear the complaints of the protestants which brought about the suspensions.

What the Railroads Face.

(From the "Chicago Evening Post.")

THE active and prompt protest of the live stock men against the proposed increase in railroad rates in Central Freight Association territory brings up before us all the exact situation which the carriers have to face again and again.

A railroad is a common carrier. This means, by a curious twist of inference, that people feel themselves justified in considering rail transportation as a sort of heaven-given natural right, like air or sunlight. They know they have to pay for transportation, but that the basis of cost has the same distinct limitations as those that lie on any private business enterprise is a fact that many of us blandly refuse to remember.

Thus the stockmen, who may have much technical right on their side, nevertheless seem to lose sight entirely of the fact that a railroad is run to make money, and that if it does not make money it will in time simply shut up and go out of business.

Like other individual shipping interests, they are quite content to have the railroads carry along a growing disparity between receipts and operating charges, but object strenuously when an effort is made to make them take a new charge which would in effect but distribute the burden.

Such objections are made again and again. They are powerful, because they are backed by the loosely thought out but popular cry that they are directed against "Increasing the cost to the consumer." As a matter of fact, it may be bad to ask an industry to pay a little more freight, but it is infinitely worse to see the whole transportation industry prostrate. It is better that a big plant should raise its price a little than that it should go out of business entirely.

This is, in effect, the situation in which our railroads are to-day. Their earnings for October, except in a few cases, were ten per cent lower than in the stagnant October of 1913. Their securities are held in the war zone by investors forced to get rid of them. The money market has been tight as a drum. Their borrowing power has been cut to the quick.

Therefore, the railroads which furnish perhaps two-thirds of the buying power in this country, continue "out of the market." And all business stagnates.

This is the fundamental situation, which neither the individual shipping interest nor the Interstate Commerce Commission seems to visualize. Nevertheless, it must be understood before we can look for fundamental improvement in the business situation. A raise in railroad rates would be the first step back to regaining prosperity.

Fate of Business Lies in Railroads.

(From the "Railroad Trainman.")

IF the railroads will get together some day and get their friends all to agree with them on the policy to be followed in educating the public to the end that the railroads can be placed on the same business footing every other business enjoys, they may get somewhere with the proposition, but while they are divided on about every plan offered to bring about this purpose there is a wonderful unanimity in the chorus, "the railroads need the money." Of course they need the money, why wouldn't they need it?

We most earnestly hope they get it; we need it, too. Any plan to win out commands attention, therefore, we offer, in part, the opinions of W. C. Van Antwerp, Governor of the New York Stock Exchange, who "took his stand on the corner and held the hat" in the hope that public sentiment might be influenced to drop something therein to keep the "widows and orphans" out of the poorhouse. The defeat of the Full Crew Law in Missouri having in part accomplished that most desirable purpose, "for the money saved is to be spent in hiring more help, buying extra supplies, installing grade crossings and building new depots," the money saved by the Missouri railroads, as the railroads told it, ought to be sufficient to care for the roads of that state and eliminate them from further consideration, but, there are other states that have railroads. But we infringe upon the opinions of the Governor of the New York Stock Exchange, which are:

"It is no longer possible for the Interstate Commerce Commission to assume full jurisdiction over railways engaged in interstate traffic embracing 350,000 miles of road, and the only hope of restoration of railway credit lies in a transfer of this authority to other hands.

"The time has now arrived when there must be an entire change of control, and unless such steps are taken we shall face a disaster which will shake the solid bedrock of the nation itself.

"The five per cent increase in freight rates asked by the eastern roads may be dismissed as negligible. Even if granted in full it will not net the railways in eastern territory more than $45,000,000, while the needs of these identical properties for refunding and other imperatively necessary improvements in the coming year are $150,000,000.

"Federal regulation superimposed on state regulation must cease. Congress has paramount authority over interstate commerce, and can abrogate any previous action of the states which may prove inconsistent therewith.

"The railways must be given a federal charter and placed under the jurisdiction of an authority in which busines men, railway men and public spirited citizens predominate to the exclusion of politicians. This form of administration might well be modeled on the general plan of the federal reserve act, dividing the railroads into geographical districts and governed by boards.

"Last year alone forty-two of the forty-eight states introduced 1,495 separate bills affecting railways, 99 per cent punitive and restrictive, and one per cent constructive and helpful.

"Last year's gross earnings fell short of those of the preceding year by $79,479,000. This is bad enough; but, notwithstanding the utmost efforts at economy, expenses actually increased in the year by $31,434,000, which, added to the loss of $79,479,000 in gross reduced the net by the prodigious sum of $110,913,000. Nor is this all. The earnings as I have given them do not include deduction of taxes. Taxes in the fiscal year 1914 exceeded those of 1913 by over $13,000,000, making a total loss of more than $124,000,000 for the year; and all this at a time when large increases in net were imperatively needed.

"You can tell as well as I, how much further traffic will be reduced by reason of a diminished purchasing power at home and abroad, and to what extent enhanced pressure is to fall upon the world's depleted supply of capital growing out of the war. You may judge for yourselves how imposible it will be for the United States to buy back from Europe even one-fifth or one-tenth of the American railway securities now owned abroad, which securities, wholly apart from the war itself, have fallen to low estate in the estimation of foreign investors.

"Overshadowing all else is the fact that $578,000,000 of American railway bonds are now in default because of the inability of the companies to earn the interest agreed upon and that the funded debt, notes and bills payable maturing during 1915 by all companies, amount to the staggering total of $817,465,970—none of which takes into account the mass of new financing made necessary each year by simple replacements and deterioration. Where is this money to come from?

"The time has come to cease flattering ourselves with delusions about prosperity, or exports to South America, or any other source on which we may base the hope of a prosperous millennium. With one hand we paint a rosy picture of our promised foreign commerce, while with the other we destroy our domestic commerce."

In all seriousness, the address is worth while, it calls attention to the vital affairs that are of the greatest moment to railroads. It appears that the increased costs of running railroads arise largely from increased public demand and not so much from the demands of legislation providing for enough employes safely to carry on the work. The increased cost of supplies of every kind necessary to railway operation, increased costs due to demand for expensive depots and office buildings to lend dignity to the city demanding them, higher taxes, reduced rates, and free service for favored shippers, tell the story of reduced railway income, and not safety legislation for employes, which is only an incident in the general expense account.

A Fair Chance for the New Haven.

(From the "Train Dispatchers' Bulletin.")

WE cordially agree with the views expressed by a leading journal in the West that for a long time the management of the New York, New Haven & Hartford Railroad has been the target for miscellaneous abuse. Grudging admissions that the present officials were doing their best to straighten out the road's finances and improve its service have had little effect in altering the public attitude; and it suffices to speak the words "business mismanagement" for some one to cap the expression with the name of this ill-fated railroad.

This feeling of bitterness ought to stop. It is a calamity for New England, for railroads throughout the country, and for the people they serve, that agitators will not let the slate be wiped clean, so as to give the New Haven a fair chance. Let the men who made trouble suffer for it if need be, but let the railroad, an enormous organization absolutely necessary to the welfare of millions of people, stand squarely on what it is doing to-day.

It is absolutely necessary that the public should lay aside its prejudice against this railroad, and should give its officials full credit for what they have done and are doing. Whatever price individuals may be called upon to pay for their past errors, the road itself should be allowed to face its present task with a record wiped clean.

Questions and Answers About Railways.

(By C. B. Forbes in the "Chicago American.")

How many employes have the railways of the United States?

1,848,883.

* * *

Allowing five persons to a family, what would be the total directly dependent upon the railroads for their living?

9,244,415.

* * *

What is the minimum number of workers dependent for employment mainly upon orders from railroads—employes of locomotive companies, car manufacturers, etc.?

More than 1,000,000.

* * *

Multiplied by five to a family this means—

Upward of five million.

* * *

Making the grand total of persons supported by the railways what?

Approximately 15,000,000, or one in every seven of the country's total population.

* * *

How much do the railroads pay to their 1,848,883 employes in a year?

$1,390,025,286.

* * *

How many cents of each dollar the railroads spend do these employes receive in wages?

Full 44 cents of each dollar.

* * *

How many cents of each dollar received are paid for materials and supplies for all purposes?

About 25 cents.

* * *

Does labor get any considerable share of this?

The bulk of it goes into the pay envelopes of those who produced or manufactured these materials and supplies.

* * *

What were the gross earnings of our railroads during the year ended June 30, 1914?

$3,098,487,696.

* * *

How much was retained as net earnings after paying operating expenses and taxes?

$716,688,210.

* * *

Who are the greatest taxpayers in the whole country?

The railroads.

* * *

How much did they pay last fiscal year?

$142,191,880.

Are their tax levies increasing?

The increase this year over last was $12,610,402 or at the rate of a million dollars more every month.

* * *

How do tax payments compare with dividend payments?

Exact comparisons for 1914 are not available but in 1913, 4.14 per cent was paid in taxes and 4.92 per cent was devoted to dividends and surplus combined. Conditions are much poorer now.

* * *

The statement was recently made by anti-railroad people that "as the receipts of the railways are $3,000,000,000, and as there are 20,000,000 families in the United States, the average expenditure per family for rail transportation is $150, or one-fourth of its income. Is this so?

The person who indulged in that arithmetic forgot to add that $2,000,000,000, or $100 for each family in the country, is paid back by the railroads in wages and materials alone, to say nothing of taxes. In other respects the statement conveys misleading notions.

* * *

How do railway freight rates in the United States compare with those of other countries?

American freight rates are the lowest in the world.

Express Companies' Holiday Traffic.

(From the "Express Gazette.")

THE express companies, during the Christmas season just concluded, more than recovered the shrinkage of approximately 25 per cent which the reports showed on the total number of shipments handled during the Christmas rush of 1913, when considerable business went to the parcel post, largely because of its novelty and the tremendous publicity which this governmental function had received at the hands of the press. While losses in business were fully recovered during the present season's holiday trade, the companies have, nevertheless, realized a comparative decrease in their gross revenues this year by reason of the lower rates enforced by the Interstate Commerce Commission.

Generally, the increased volume of business handled by express companies this season is accepted as indicating a substantially good condition of holiday trade throughout the country. The assumption is supported by reports from the New York, Boston and Chicago offices of the express companies, which speak of increased business generally throughout their territory. On December 22nd and 23rd the total number of way bills issued by one of the companies in New York City, including Brooklyn, was 99,613, as against about 70,000 last year for New York City, excluding Brooklyn. On the basis of business done in New York alone, the volume of packages handled by this company was from 25 per cent to 30 per cent greater.

A feature of the 1914 holiday package business was that department stores in many instances sent practically all of their packages, destined for out-of-town points of delivery, by express in preference to parcel post, which service was used almost exclusively to effect delivery during the 1913 holiday period. Another feature of this year's holiday traffic was the substantial increase in the receipt of small packages, or in the very lines in which Postoffice competition is greatest. Just how significant these facts are remain to be seen. The lure of the lower postal rates has unquestionably created an enormous amount of new package business in which the express companies because of distinctive advantage in the character of their service may logically expect to share to an even greater extent than at present.

Eventually the express companies, through the preference of shippers for their more expeditious methods, may find that what threatened to prove a ruinous competition will have the effect noted of competition in other fields—of increasing their own returns.

Suggestions for Passengers.

(From the "Rio Grande Service Gazette.")

THE "Safety First" movement stands for the conservation of human life.

The public can, in many ways, co-operate with the Company and its employes and at the same time protect themselves from injury by observing the following cautions:

Do not get on or off moving trains.

Do not place grips or other obstructions in the aisles of coaches; someone is liable to fall over them.

Do not place too large baggage or packages in the racks of coaches.

Do not throw anything out of the windows.

Do not stand on or too near the track.

Do not let children run about while train is in motion.

Do not accompany your departing friends aboard the train; employes will render them the necessary assistance.

Do not place hand or arm under open car windows.

Do not ride on platforms of coaches.

Do not place hands on door posts of coaches, as the motion of the train sometimes causes doors to close with considerable force.

Look both ways before crossing tracks.

Watch your step when getting on or off trains.

Any suggestions from patrons that will bring about greater safety are solicited.

"Eternal vigilance is the price of Safety. Keep your eyes and ears open."

Crossing the Tracks.

(From the "Topeka State Journal.")

UNTIL someone invents a crossing signal which will swat the offending public when it attempts to cross a railroad track without regarding warning devices, the railroads will have little advantage in adopting any of the patents now on the market. A large percentage of persons cross a railroad track with the same American carelessness that they do when crossing a busy street or sidewalk. The records show that nearly all the personal injuries due to engines striking pedestrians, automobiles and buggies are the result of carelessness on the part of the persons hurt.

"Safety First" in Schools.

CLAIMS ATTORNEY George McCaughan, of the Rock Island, is chairman of a committee chosen recently at a meeting of railroad executives and attorneys in Chicago. This committee is preparing a course of lectures and study which it is proposed to get before the children in every class of every American public school. The subject is: "Safety First."

All over the country this proposition is being given much attention by the press, by school boards and teachers. It is fortunate that the committee is headed by so forceful and able a man as Mr. McCaughan, who has helped much to put the Rock Island high up in the list of active "Safety First" roads.

Commenting on the meeting in Chicago, the "Denver Post" says:

"At the meeting it was developed from the reports of the Interstate Commerce Commission that 80 per cent of the accidents on the railway rights of way are due to trespassers. That is to say, that in the great majority of casualties the occurrences are to persons who are not authorized to be upon the rights of way or are otherwise interfering with the operation of trains. It is the purpose of the committee in charge of the educational work in the schools to prepare, in simple language, so as to be comprehended by every pupil, short, but interesting, statements which will impress on them the necessity of self-protection, not only from accidents along steam railroads, but also on trolley lines.

"The subject will be taken up with the school boards in every community in the United States, and all the service, with the exception of the delivery of the lectures, if they may be so called, will be free."

The Railroad Man's Creed.

(From the "Norfolk and Western Safety-First Magazine.")

AS a man among men I have Rights to maintain, Privileges to possess, Duties to perform, Obligations to keep.

My Rights are those of my fellow men, no more, no less.

My Privileges are to serve my fellow men and to be served by them.

My Duties are to myself and to the world, my duty to myself being to fit myself for my duty to the world.

My Obligations require me to shape my conduct and to use my abilities in such ways that the world may be the better for my having lived.

Hence, holding fast to these Truths, and seeking to practice them as I live and work, I hereby profess my faith in these

SEVEN VIRTUES OF MY VOCATION.

1. I Believe in Safety. Just as "a good sailor takes no chances," making no short cuts among rocks and shoals, so the Railroad Man may never disregard his warnings and signals, nor court disaster by rash venturing.

2. I Believe in Fidelity. I must faithfully

perform my every task. Where but one in a thousand neglects his duty—be it naught but the rapping of a wheel, the setting of a bolt, the driving of a spike—there can be no safety.

3. I Believe in Sobriety. The steady nerve, the sure hand, the cool head, the sound judgment, are things indispensable in my work. The least indulgence may impair them. And without these there can be no safety.

4. I Believe in Courtesy. In showing good will I gain good will. Good service depends upon good will given and good will received.

5. I Believe in Economy. Wastefulness is evil. Nothing that can be of use may be wasted; not a pound of coal, not a gill of oil, not a scrap of paper. In the sum of savings lies much gain, surely profiting them that save.

6. I Believe in Organization. Civilization is built only by men holding together for common good. True organization considers all: the worker, the employer, the public at large—each for all and all for each.

7. I Believe in Efficiency. In seeking large yields from economized effort, we lighten our labors and increase in proportion the returns from our work. To these ends shall we strive, shaping our course with intelligent action. Thereby we accordingly prosper, each and all.

—Sylvester Baxter.

Personal

James M. Hall.

JAMES M. HALL, who has recently been elected president of the Midland Continental Railroad, was born at Stillwater, Minn., in 1879. He was educated as a mining and constructing engineer and began railway work in the traffic department of the Chicago, Milwaukee, St. Paul and Omaha Railroad at St. Paul. In 1902, he joined the forces of the Southern Pacific, engaged in location work and in 1903 went with the El Paso Northwestern, in the operating department. He left the railway service in 1904 to engage in a gold mining enterprise at Nicaragua, Central America, and from 1906 to 1910, he was confidential business manager for President Zelya of the Babylonian Gold Mine, in charge of all his mining and railroad interests. In 1912, he located in Alaska and was engaged in location work for an English company. He joined the forces of the Midland Continental Railroad in 1912 as assistant to the president and in 1914, his duties were enlarged and he was placed in charge of construction and operation. He occupied this position at the time of his recent election.

JAMES M. HALL.

D. D. Curran.

D. D. CURRAN, who has recently been elected president of the New Orleans Railway and Light Company, has had a practical railroad experience covering a period of more than forty years. Beginning his career as a member of a train crew, he earned advancement, by the thorough-going and intelligent discharge of his duties, through the various grades of local and division railway operation, and finally to his present office of managerial and executive responsibility as president and general manager of the New Orleans and Northeastern Railroad.

Mr. Curran's long activity in railway work began in 1873 when he started as a brakeman in the employ of the Pennsylvania Railroad. In this capacity he continued with the Pennsylvania system during the five succeeding years, at the end of which time he took a position as freight conductor on the Mobile and Montgomery Railroad. Later he became a passenger conductor on the same line. His next position was that of yardmaster at Montgomery, Alabama, with the Louisville and Nashville Railroad, in the service of which company he was subsequently made trainmaster at Birmingham, Alabama. This latter position he held up to 1887, when he entered the employ of the Central of Georgia Railway as superintendent of the South Carolina Division. Still in the service of this road he was made, successively, superintendent of the Southwestern Division, superintendent of the Columbus and Western Division, and in 1892 was appointed superintendent of the Savannah and Western Division. His connection with the New Orleans and Northeastern Railroad began in February, 1892, when he became superintendent of that railway. In this position he served until August, 1907, at which time he was chosen president and general manager, and as such has since continued to direct the operations and affairs of the company.

D. D. Curran.

A. T. Hardin.

A. T. HARDIN, vice-president of the New York Central and Hudson River Railroad, has been appointed vice-president in charge of the operating department embracing transportation, construction, repair and equipment, with headquarters at New York, of the New York Central Railroad, which is the name of the new company which has taken over the New York Central and Hudson River and the Lake Shore and Michigan Southern. Mr. Hardin was born in 1868 at South Carolina and graduated from the university of that State in civil engineering in 1894. He entered railway service in 1882 as telegraph operator, Richmond & Danville Railroad. Since then have been consecutively to 1890, agent and stenographer, same road; 1890 to 1894, in college; 1894 to 1898, in Maintenance of Way Department, Southern Railway.

From 1898 to September, 1899, supervisor and division engineer of the New York Central and Hudson River Railroad Company; September, 1899, to February, 1903, engineer of track, same road; February, 1903, to July, 1905, engineer maintenance of way, same road; July, 1905, to June 14, 1906, assistant to general manager, same road; June 14, 1906, to April 15, 1912, assistant general manager, same road; April 15, 1912, to April 1, 1913, assistant vice-president, same road; April 1, 1913 to January 1, 1915, vice-president, same road.

E. W. Beatty.

E. W. BEATTY, who was recently appointed vice-president and general counsel of the Canadian Pacific, with headquarters at Montreal, Que., was born on October 16, 1877, at Thorold, Ont., but moved with his parents to Toronto when he was ten years old. He is the son of the late Henry Beatty, a well known steamboat man in Canada. After graduating from the Toronto University he studied law in Toronto with a firm of which A. R. Creelman, who was his predecessor as general counsel of the Canadian Pacific was a member. In 1901 Mr. Beatty entered the legal department of the Canadian Pacific as one of the assistants to Mr. Creelman and in March, 1910, he was appointed general solicitor. He remained in this position until July 1, 1913, when he was appointed general counsel with headquarters at Montreal, Que., which position he held until his recent appointment also as vice-president.

E. W. Beatty.

P. E. Crowley.

P. E. CROWLEY, general manager of the New York Central & Hudson River, at New York, has been appointed assistant vice-president of the operating department in charge of transportation and equipment maintenance, of the New York Central Railroad, with headquarters at New York. He was born in August, 1864, at Cattaraugus, N. Y., and began railway work with the Erie as messenger boy in 1878. The following year he was promoted to telegraph operator, and later was station agent and then train despatcher on the same road. In 1890 he entered the service of the New York Central & Hudson River as train despatcher on the Rome, Watertown & Ogdensburg Division, and was promoted to chief train despatcher in 1891. The same year he was made trainmaster, and in September, 1900, was appointed chief trainmaster of the Pennsylvania Division. He was promoted to superintendent of the Pennsylvania Division in August, 1901, and was made assistant general superintendent in December, 1904. Mr. Crowley was appointed general superintendent of the same company in June, 1905, and was promoted to assistant general manager in March, 1907, remaining in that position until April, 1912. He was then general manager of the same road until January 1st, when he was appointed assistant vice-president of the New York Central Railroad, which has

P. E. Crowley.

W. J. Fripp.

taken over the New York Central & Hudson River and the Lake Shore & Michigan Southern.

C. L. Thomas.

C. L. THOMAS, freight traffic manager of the Baltimore and Ohio Southwestern and the Cincinnati, Hamilton and Dayton lines, with headquarters at Cincinnati, has been appointed general traffic assistant of the Baltimore and Ohio system in addition to continuing in the discharge of his regular duties.

As general traffic assistant, Mr. Thomas will represent the general freight traffic manager or the traffic vice-president of the Baltimore and Ohio, and such communications as relate to his added duties will not necessitate a change in headquarters from Cincinnati to Baltimore.

Mr. Thomas entered the service of the Baltimore and Ohio at the time that road assumed control of the Cincinnati, Hamilton and Dayton Railway, of which company he has been freight traffic manager since March, 1911. Prior to that time, Mr. Thomas was general freight agent and assistant freight traffic manager of the Erie Railroad lines west of Buffalo and Salamanca.

W. J. Fripp.

W. J. FRIPP, who on January 1st, was appointed general manager of the lines east of Buffalo, of the New York Central Railroad, was born in 1863 at Albany, New York. He entered railway service as yard clerk for the New York Central Lines at West Albany in 1880 and in 1888, was transferred to the office of the superintendent of the Mohawk Division. In 1892, he became general dispatcher at West Albany and in 1893, freight train master of the Mohawk Division. This position he held for five years, when he was promoted to that of passenger trainmaster of the Mohawk Division and in 1902, became assistant superintendent. Four years later, he was made superintendent of the River Division and the following year, left the service of the New York Central to become assistant general superintendent of the Boston and Albany, from which position, during the same year, he was promoted to that of general superintendent. He returned to the New York Central Line in 1910, as general superintendent of the Eastern District and in 1912, was made assistant general manager of the New York Central and Hudson River Railroad, with headquarters at Albany. He was holding this position at the time of his recent promotion.

S. T. Bledsoe.

S. T. BLEDSOE has been appointed assistant general solicitor of the Atchison, Topeka and Santa Fè, with headquarters at Chicago. In addition to his general duties he will have special charge of valuation and

S. T. Bledsoe.

tax matters, supervision of proceedings before state commissions and of litigation resulting from their orders and from legislative acts, and perform such other duties as may be assigned to him. Mr. Bledsoe was born May 12, 1868, in Clinton County, Kentucky. He was educated at the Southern Normal School and Business College at Bowling Green, Ky., and the University of Texas. He entered railway service in 1893 as local attorney for the Gulf, Colorado & Santa Fe at Ardmore, I. T., and in 1907 was appointed attorney for Indian Territory for the same road. From 1908 to July, 1912, Mr. Bledsoe was a member of the firm of Cottingham & Bledsoe, solicitors for Oklahoma for the Atchison, Topeka & Santa Fe. On the latter date he became general attorney for the Santa Fe at Oklahoma City, Okla., retaining his connection with the firm of Cottingham & Bledsoe.

Robert Dunlap.

ON January 1st, Robert Dunlap became western solicitor of the Atchison, Topeka and Santa Fe System, with headquarters at Chicago. In his new position he will have special charge of corporate and contract matters, and of litigation outside of the states through which the lines of the system run, give counsel to state solicitors in matters arising in their respective jurisdictions, continue to act as solicitor for Illinois, and perform such other duties as may be assigned to him. Mr. Dunlap was born October 4. 1853, at Cincinnati, Ohio, and was educated at the Cincinnati University. He began railway work in 1883 as assistant attorney for the Atchison, Topeka & Santa Fe, with which road he has remained ever since. In 1895 he was appointed assistant to the general solicitor for the receivers, and in 1897, upon the reorganization of the company, he was made general attorney at Chicago.

ROBERT DUNLAP.

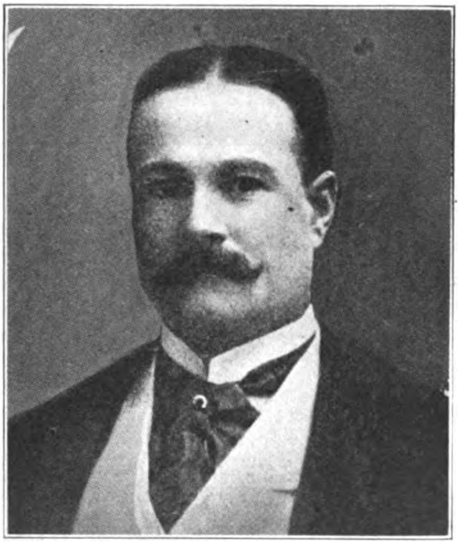
Fred E. Signer.

Fred E. Signer.

FRED E. SIGNER, who has recently been made general eastern freight agent of the Lehigh Valley Railroad with headquarters at New York, was born at Buffalo and entered railway service in 1886 as clerk with the Buffalo, New York and Philadelphia Railroad and from that time until 1898 served in various capacities with the Chicago & Atlantic Railroad at Chicago; Southern Pacific and Los Angeles; Chicago and Alton at Chicago; Wabash at Chicago. He represented the Wabash Railroad on the Chicago Board of Trade from 1898 to May, 1900. Agent of the Wabash and Lackawanna Despatch from May, 1900, to April, 1902, when he was appointed general freight and passenger agent of the Cincinnati, Richmond and Muncie Railroad, and served in that capacity until 1903, when he was appointed general manager of the Lehigh-Wabash Despatch with headquarters at Detroit, later at Chicago. In the latter part of 1905 the general manager's office of the fast freight lines operating in connection with the Wabash Railroad were abolished and he was appointed assistant general freight agent of the Wabash Railroad, with headquarters at St. Louis, in charge of all fast freight lines operating in connection with that system. In November, 1906, he was appointed general freight agent of the Wisconsin Central, with headquarters at Milwaukee and later in Chicago. When the Wisconsin Central was absorbed by the M. St. P. & S. S. M. Ry, he was appointed general freight agent of the Chicago Division of that system, where he served until January 1, 1910, when he was elected commissioner of The Association of Lake Lines, headquarters at Buffalo, where he remained until December 5, 1914, when he was appointed general eastern freight agent of the Lehigh Valley Railroad.

Obituary

William D. Cantillon, formerly general manager of the Chicago and North Western, died at his home in Chicago on December 13th. Mr. Cantillon was born on August 5, 1861, at Janesville, Wis., and was connected with the North Western continuously for 36 years, resigning last May on account of ill health. He began railway work with that road as brakeman in 1878. He was afterwards conductor, and from 1891 to 1893 was trainmaster at Milwaukee, Wis. He was then for four years assistant superintendent at Milwaukee and was made division superintendent at Winona, Minn., in 1901. In July, 1902, he was promoted to assistant general superintendent and in January, 1906, was appointed assistant general manager. Mr. Cantillon became general manager in November, 1910, which position he held at the time of his retirement last spring.



WILLIAM D. CANTILLON.

Thomas L. Chapman, formerly superintendent of motive power of the Chesapeake and Ohio, died on December 30th, at the home of his son in Caldwell, N. J., at the age of 71.

James Wallace Cunningham, land and tax commissioner for the International and Great Northern, died on December 10th at his home in Houston, Texas, aged 54 years.

Charles J. Eddie, formerly for sixteen years general western agent of the Chicago, Milwaukee & St. Paul Railway, died at his home in Chicago on December 10th, aged 70 years.

Franklin Fairman, formerly auditor of the Illinois Central, died at his home in Chicago on December 26th, aged 81 years. Mr. Fairman was connected with the Illinois Central from 1855 to July, 1904. He filled minor positions until 1862, when he was made assistant general freight agent. Later he was successively auditor of freight accounts, freight auditor, and auditor of freight receipts until November, 1900, when he was appointed auditor, which position he held until his retirement in July, 1904.

William Reed Hancock, formerly treasurer of the Wisconsin Central, died on December 16th, at his home in Milwaukee, Wis., as a result of injuries received in an automobile accident about three weeks ago. He was born at Ashtabula, Ohio, on February 8, 1841, and began railway work in 1872 as treasurer of the Green Bay and Minnesota. He was subsequently cashier and accountant for the receiver of the same road; assistant treasurer and accountant of the Green Bay, Winona & St. Paul, and from January, 1887, to October, 1893, auditor of the Milwaukee, Lake Shore and Western. Mr. Hancock then went to the Wisconsin Central, of which road he was cashier and paymaster until July, 1899, assistant treasurer from the latter date to November, 1900, and then treasurer until about four years ago.

Henry S. Hayward, consulting engineer of floating equipment of the Pennsylvania Railroad Lines East of Pittsburgh, Pa., with headquarters at Jersey City, N. J., who died on December 14th, at Augusta, Ga., was born on September 19, 1845, at Brooklyn, N. Y. He served a four years' apprenticeship in marine construction work and engineering, and then to 1873, was in continuous sea service, first as junior engineer, and later was promoted until he became chief engineer on the steamships of the Pacific Mail Steamship Company. In April, 1873, he entered the service of the Pennsylvania Railroad as a machinist in the Altoona shops. The following year he was assigned to special duties on the New Jersey Division as assistant road foreman of engines, and in April, 1875, he was appointed assistant superintendent of motive power of the New Jersey Division. He was promoted in October, 1882, to superintendent of motive power of the same division, also of the West Jersey & Seashore and the Camden and Atlantic, including ferries and floating equipment on the Delaware River. From January 1, 1912, until the time of his death, he was consulting engineer of floating equipment of the Pennsylvania Lines East of Pittsburgh and Erie, Pa. Mr. Hayward was a member of the American Society of Mechanical Engineers, the Society of Naval Architects and Marine Engineers, also of the Engineers' Club of New York and the New York Railroad Club. He was also a member of the committee of the American Railway Master Mechanics' Association, which had charge of the 1912 edition of the Locomotive Dictionary.

Lucian J. Irwin, president and general manager of the Louisville, Henderson & St. Louis, died at Louisville, Ky., on December 31st, as a result of an operation for appendicitis. Mr. Irwin was born at Abbeville, Miss., on May 5, 1867, and had been in railway service since 1883. He held various clerical positions with the St. Louis, Arkansas & Texas, the Illinois Central and the Louisville & Nashville, until May, 1891, when he became agent for the Cumberland Gap Despatch at Louisville, Ky. He remained with that line until December, 1889, successively as traveling freight agent, western agent at Kansas City, Mo., and agent at Chicago. On the latter date he was appointed general freight and passenger agent of the Louisville, Henderson & St. Louis; in April, 1908, he was promoted to general superintendent and the following September he was elected president and general manager.

Colonel Edward D. Meier, formerly president of the American Society of Mechanical Engineers, died on December 15th, in New York City at the age of 73. He was born in St. Louis, Mo., and graduated from Washington University in 1858. He subsequently spent four years in Germany at the Royal Polytechnic College in Hanover, and later became an apprentice at the Mason Locomotive Works, Taunton, Mass. After serving in the Union Army during the Civil War he entered the service of the Rogers Locomotive Works at Paterson, N. J. He subsequently was superintendent of machinery of the Kansas Pacific, now a part of the Union Pacific. In 1870 he became chief engineer of the Illinois Patent Coke Company, and two years later was secretary and construction engineer of the Meier Iron Company and in 1884 organized the Heine Safety Boiler Company, of which he was president at the time of his death. Previous to 1908 he was president of the American Diesel Engine Company. He was president of the American Boiler Manufacturers' Association in 1898; president of the American Society of Mechanical Engineers in 1910, and in 1913 represented that society in Munich, at a joint meeting with the German society.

William S. Napier, Sr., general baggage agent of the Sunset-Central Lines, died at his home in Houston, Texas, on December 24, aged 65 years. Mr. Napier had been connected with the Houston and Texas Central, one of the roads comprising the Sunset-Central Lines, since 1880, and had been general baggage agent of those lines for 24 years.

Frederick A. Nash, general western agent of the Chicago, Milwaukee & St. Paul, at Omaha, Neb., died on December 11th, aged 66 years. Mr. Nash was born at Akron, Ohio, and had been in railway service since September, 1867. He was with the Union Pacific until 1882, when he went to the Chicago, Milwaukee & St. Paul as general agent at Omaha. In 1897 he was appointed general western agent.

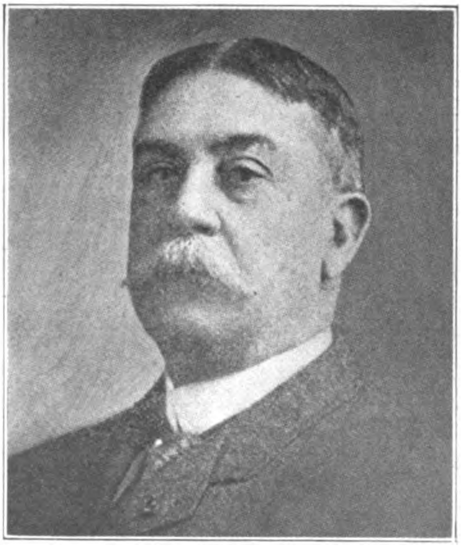
George M. Sargent, general agent of the San Pedro, Los Angeles & Salt Lake Railroad, at Chicago, died at his home in that city, December 27th, aged 56 years.

Charles A. Thompson, formerly superintendent of motive power and equipment of the Central of New Jersey, died on January 4th at Jamaica, N. Y., at the age of 81.

G. B. Tyler, general western agent of the Atlanta & West Point Railroad, and Western Railway of Alabama, at Cincinnati, Ohio, died recently in that city.

F. Wetherald, special passenger agent of the Chicago, Burlington & Quincy at Boston, Mass., died in that city on December 8th. He had been connected with the Burlington since 1856. He was traveling passenger agent from 1876 to 1893, when he was appointed special passenger agent at Boston.

Colonel Eugene Zimmerman, president of the Dayton, Lebanon & Cincinnati Railroad, and formerly chairman of the Board of Directors of the Pere Marquette Railroad and president of the Cincinnati, Hamilton & Dayton Railway, died suddenly at the Queen City Club, Cincinnati, Ohio, December 20th. He was born December 17, 1845, at Vicksburg, Miss., and entered railway service in 1878 as assistant engineer on construction Cincinnati & Green River; in 1881 was superintendent and chief engineer, Kentucky & South Atlantic Railway; in 1883, president and chief engineer, Chesapeake & Nashville Railroad; in 1888, became president Dayton, Fort Wayne & Chicago Railway. From June, 1892, to July 8, 1904, he was vice-president, Cincinnati, Hamilton & Dayton Railway; July 8, 1904, to October, 1905, president of that road; May 3, 1905, to October, 1905, also chairman, Board of Directors, Pere Marquette. He was also for a time president Detroit, Toledo & Ironton and Ann Arbor Railroads.



COL. EUGENE ZIMMERMAN.

Between the rails of a railroad there are, ordinarily, just four feet eight inches and a half, and the balance of the unsafe space does not exceed three feet; yet with all the rest of the world to stand and walk on, some 11,000 people every year find it necessary to their employment to end their days, or their health, on this narrow strip of land.

Financial

The Record for 1914.

THE railway financial record for 1914 is one, the duplication of which would mean the practical ruination of the entire industry. The rapid decrease in gross revenues, in spite of all that could be done in reducing expenses, has caused net earnings to vanish at an alarming rate and has so affected railroad credit as to make investors unwilling to risk their money in so uncertain an enterprise. The present condition of the carriers makes it impossible for them to pay the higher rates for capital which is now demanded, and this situation has been reflected, to a marked extent, upon railway purchases, which in turn, has had its influence upon every branch of industry and commerce.

While the general political and business situation has undoubtedly affected the earning power of the carriers, their present plight is largely the result of unfair and destructive legislation and regulation. The unreasonable demands of labor and expensive and obstructive laws, supplemented by the orders of the National and State Commissions, have in their accumulative effect, proved a tremendous burden and a most unfortunate influence upon railway credit. Full crew laws, laws limiting the size of freight trains, expenses of federal and state valuation, expenses of changing methods of accounting and increases in taxes, have all had their influence, and there appears to be no limit to which public regulators will not go in forcing additional expenditures upon the carriers.

The recent increase of five per cent granted by the Interstate Commerce Commission to the Eastern carriers, is a step in the right direction, but is only the beginning of a constructive effort and more liberal attitude on the part of our public regulators if the railroads are to be permanently placed upon a basis where they shall be permitted to progressively meet the constantly increasing demands placed upon them. Constructive instead of destructive regulation must be more generally employed if the welfare of the Nation is to be conserved. To quote from a statement recently appearing in an article by J. Kruttschnitt, chairman of the Executive Committee of the Southern Pacific Company:

UNCLE SAM'S OPPORTUNITY

—*Wall Street Journal.*

BUSINESS DEPRESSION
SECURITIES
NEW YORK STOCK EXCHANCE
WAR CLOUD

THIS WAY OUT!

—*Financial America.*

"When the general public understands how it has been misrepresented by unjust and unwise public servants, and how perilously near ruin they have brought all business interests in our country, in starving and threatening the life of the railroads, they will not long delay the exercise of the necessary corrective power. Indeed, it must be apparent to the most superficial observer even, that public opinion has already been aroused, and its effect has been seen in the recent solution of a long pending and exceedingly vexatious problem."

Reference was made in another section of this issue to the receiverships which occurred in 1914. They included twenty-two roads with a total mileage of 4,222 miles and a capitalization and funded debt of nearly $200,000,000. Foreclosures during the same period affected eight roads with a capitalization of over $80,000,000. Railroads in the hands of receivers at the end of 1914, numbered sixty-eight with a total mileage of 21,048 miles and a total capitalization and funded debt of approximately $1,250,000,000.

Under these circumstances, it is not surprising that there were a number of dividend reductions. The Atlantic Coast Line reduced its dividend from 7 to 6 per cent, the Buffalo, Rochester and Pittsburgh, from 6 to 5, the Central of Georgia, preferred, from 6 to 3, the Hocking Valley, from 12 to 7, the Louisville and Nashville from 7 to 6, the Michigan Central from 6 to 4, the Norfolk Southern from 8 to 2, the Pennsylvania Company from 7 to 4, the Pittsburgh, Cincinnati, Chicago and St. Louis, preferred, from 5 to 4½ and the common from 5 to 3½, the St. Louis Southwestern preferred from 4¾ to 1½ and the Southern Railway from 5 to 4½. There were a number of other important railways who discontinued their dividends to 1914, these included the Chicago, Indianapolis and Louisville; Chicago, Rock Island and Pacific; Cincinnati Northern; Colorado and Southern preferred; Missouri, Kansas and Texas preferred; New York, Ontario and Western common; the Vandalia and the Vicksburg, Shreveport and Pacific. In addition, there were a number of other reductions and discontinuances affecting smaller roads.

Some Trade Comparisons.

REACTION was under way in the early months of the year, and the effect of the war, was to accentuate a declining tendency in trade. How far it had that effect appears from a comparison of the percentages of change in the first and second six months of the year in some of the figures which reflect the state of trade and of banking. The following tabulation recently appeared in the "New York Annalist":

		Per Cent. of Change		
Railroad earnings (10 months)	1914	First Half	Second Half	Full Year
Gross	$2,439,529,291	- 4.8	- 3.8	- 4.4
Net	568,549,697	-15.7	- 2.8	- 9.6
Foreign trade				
Merchandise				
Imports	1,789,619,401	-11.5	+11.4	- 0.2
Exports	2,102,879,583	-10.2	-19.8	-15.3
Total	3,892,498,984	- 0.9	-16.4	- 9.0
Excess of expts.	313,260,182	-77.0	-38.8	-54.8
Gold				
Exports	222,585,632	+31.7	+ 393	+ 142
Imports	54,599,678	+10.1	-33.3	-14.3
Excess of expts.	167,985,954	+48.6	*...	+ 497
Bank clearings ..	155,897,239,322	- 0.9	-15.4	- 8.0
National banks				
Loans, average .	6,339,813,143	+ 2.8	+ 2.3	+ 2.5
Cash, average ..	947,576,145	+ 6.6	+ 2.2	+ 4.4
Failures				
Number	18,142	+ 2.2	+24.4	+13.1
Amount	352,154,697	+39.9	+19.5	+29.1
Farm output, value	9,872,936,000	.....	.....	+ 0.8
Iron production .	22,934,000	-24.1	-26.7	-25.3
Steel orders, avge.	4,093,441	-38.1	-21.8	-30.6

*In the second half of 1913 there was an excess of gold imports.

From the tendency displayed in these figures, it is safe to assume that had it not been for the war, the very bountiful crops and the establishment of the new banking system would have been much more potent than they were in bringing recovery.

Baltimore and Ohio Declares Semi-Annual Dividend.

AT the monthly meeting of the Board of Directors of the Baltimore and Ohio Railroad Company, held in New York, on January 14th, the semi-annual dividend of two per cent on preferred stock and two and one-half per cent on common stock was declared. The dividends are payable on March 1st to stockholders of record February 1, 1915.

Following is a summary of the six months' income to December 31, 1914, five months' actual and one month partly estimated:

Gross Revenue	$47,138,435	Decrease	$6,518,410
Expenses	34,111,380	"	5,243,730
Net Revenue	13,027,127	"	1,274,680
Railway Taxes	1,599,636	"	30,141
Operating Income ..	11,427,491	"	1,244,539
Other Income	2,442,032	Increase	63,273
Gross Corporate Income	13,869,523	Decrease	1,181,266
Deduction	9,385,283	Increase	290,046
Net Corporate Income	4,484,240	Decrease	1,471,312

Deducting the preferred dividend leaves $3,306,981 applicable to the $152,000,000 common stock outstanding.

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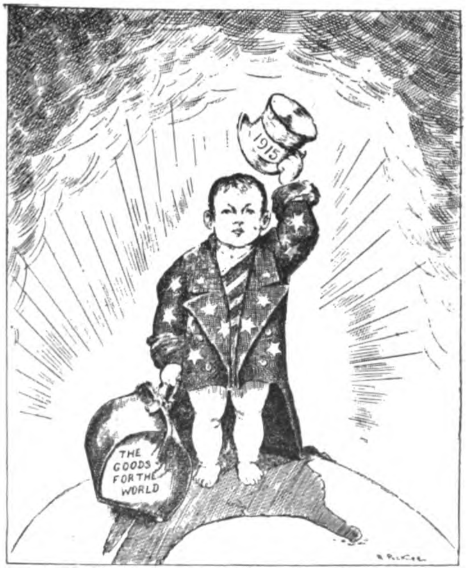
The reduction of the dividend from three to two and one-half per cent was desirable because of the continued decline in gross revenues, the falling off in the six months being $6,518,000 or 13.82 per cent. The net earnings for the period at $4,484,240 were approximately $500,000 less than required for the dividend declared.

Commenting on the action taken, President Willard said:

"When in July last consideration was given to the question of dividend then to be declared, we had been hopeful that the railroads in the eastern territory might at an early date be permitted to generally increase their freight rates full five per cent as requested, in which event with normal conditions as to business, the Baltimore and Ohio in my opinion should and could with its present facilities, pay six per cent on its common stock with a reasonable surplus over.

"Just what the ultimate effect of the recent decision may be cannot now be stated, but it is estimated that with the direct increase allowed, which will largely become effective by February 1st, the Baltimore and Ohio should realize an increased net income, based on business of 1914, of from $2,225,000 to $2,500,000 a year, or a sum equal to about one and one-half per cent on the common stock.

"Having in mind the effect of these increases on the future revenue of the company, even should the volume of business continue for a time to be only on the basis of the past six months, it is felt that the results in the future, with a proper consideration of the interests of the company's more than 35,000 shareholders, will justify the action taken at this time in declaring a two and one-half per cent dividend, although the earnings for the first six months fell somewhat short of the amount necessary for this purpose."


1915
THE GOODS FOR THE WORLD

MADE IN U S A.

—*Financial America.*

Electric Towing System for Panama Canal Locks

AFTER a very thorough study of the entire problem of maneuvering ships through the locks of the Panama Canal, it became evident that they should not proceed through the locks under their own power, and that a substitute for the ship's power should embrace the following requirements:

(a) Ability to place the ship in proper relation to the lock.

(b) Capability of keeping the ship to its course.

(c) Accelerating and retarding the ship without rupturing the lines.

(d) The lines when once attached should be used without change for lockage in flight.

(e) A small number of skilled operators rather than a large number of unskilled men to co-ordinate.

The towing system described in the following pages was designed and patented by Mr. Edward Schildhauer, electrical and mechanical engineer of the Isthmian Canal Commission, and the forty towing locomotives and all the electrical apparatus for operating the locks, were built by the General Electric Company.

TOWING SYSTEM.

In passing through the Canal from the Atlantic to the Pacific, a vessel will enter the approach channel in Limon Bay, which extends to Gatun, a distance of about seven miles. At Gatun it will enter a series of three locks in flight and be raised 85 feet to the level of Gatun Lake. It may then steam at full speed through the channel in this lake, for a distance of 24 miles, to Bas Obispo, where it will enter the Culebra Cut. It will pass through this cut, which has a length of nine miles and reach Pedro Miguel, where it will enter a lock and be lowered 30 feet. Then it will pass through Miraflores Lake for a distance of 1½ miles until it reaches Miraflores, where it will be lowered 55 feet through two locks, to the sea-level, after which it passes out into the Pacific through an 8½ mile channel.

The main features of all the lock sites are identical; and the following brief description of the Gatun Locks, with special reference to the arrangements of the towing tracks, ship channels, inclines and approaches, is given to enable the reader to obtain a clearer conception of the towing scheme in general, as well as the more detailed description of the locomotive which is to follow.

The general layout of the Gatun Locks is clearly shown in Fig. 5; and it is noted that there are two ship channels, one for traffic in each direction. The channels are separated by a center wall, the total length of which is 6330 feet. There are two systems of tracks, one for towing and the other for the return of the locomotive when returning idle. This, however, refers only to the outer walls. For the center wall, there is only one return track in common for both the towing tracks. The towing tracks are naturally placed next to the channel side, and the system of towing utilizes normally not less than four locomotives running along the lock walls. Two of them are opposite each other in advance of the vessel, and two run opposite each other following the vessel. The number of locomotives is, however, increased when the tonnage of the ship demands it.

Cables extend from the forward locomotives and connect with the port and starboard sides respectively of the vessel near the bow, and other cables connect the rear locomotives with the port and starboard quarters of the vessel. The lengths of the various cables are adjusted

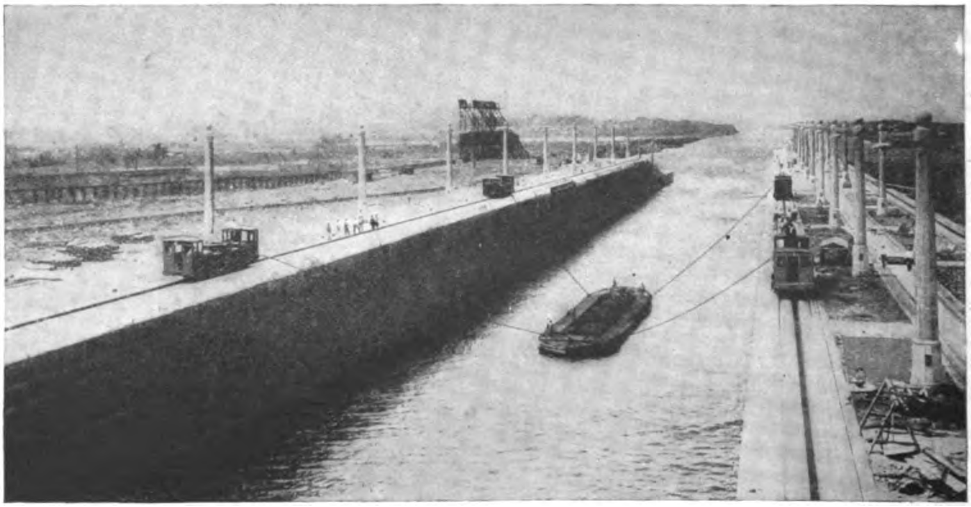


FIG. 5—TOWING LOCOMOTIVES ON FIRST TRIAL RUN, RETURNING BARGE THROUGH GATUN LOCKS TO ATLANTIC LEVEL, PANAMA CANAL.

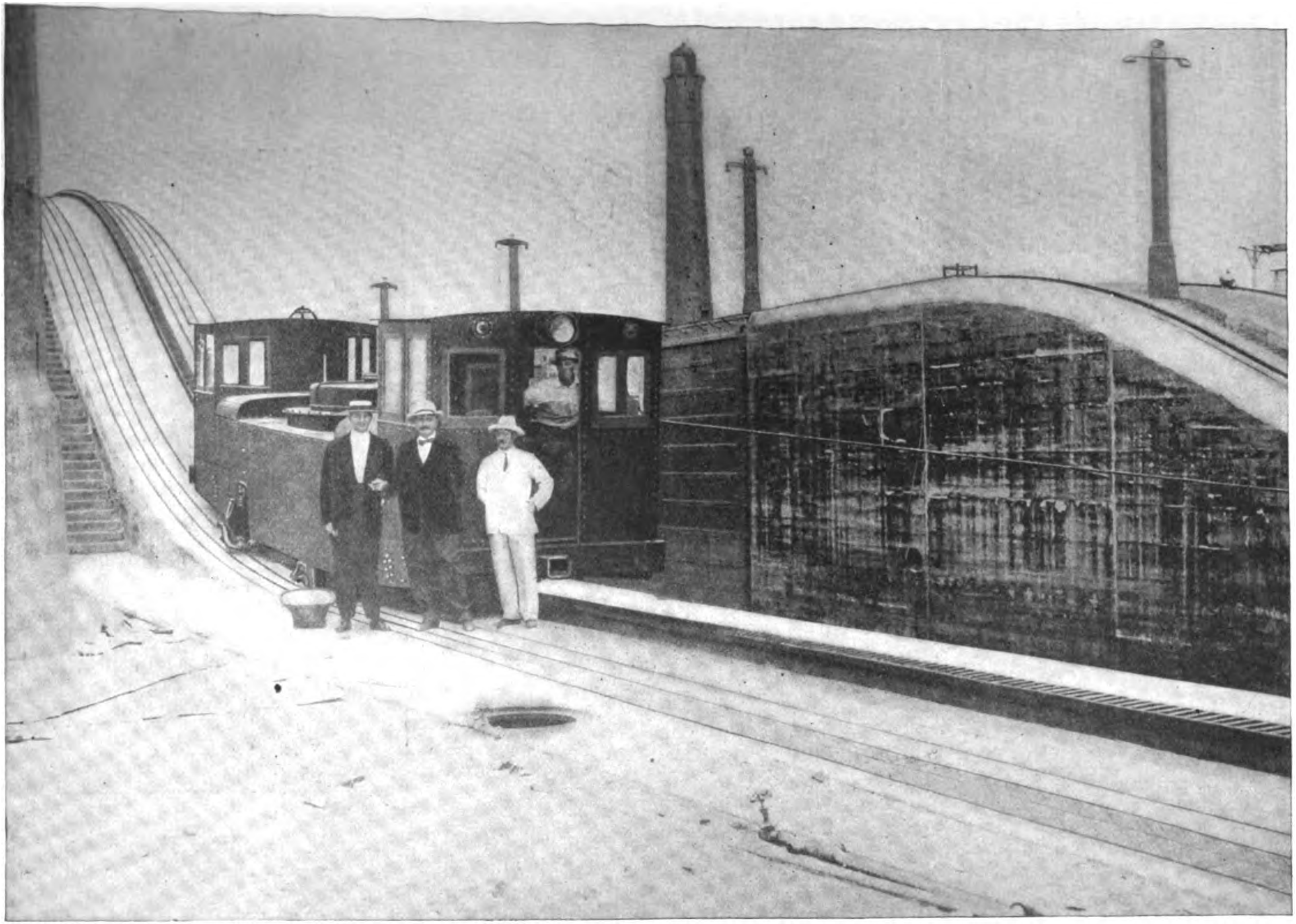


FIG. A—TOWING LOCOMOTIVE ABOUT TO ASCEND THE INCLINE LEADING TO THE TOP LEVEL OF GATUN LOCKS. STANDING IN THE FOREGROUND, LEFT TO RIGHT, ARE: EDWARD SCHILDHAUER, ELECTRICIAN AND MECHANICAL ENGINEER, ISTHMIAN CANAL COMMISSION (I. C. C.); LT. COL. WILLIAM L. SIBERT, ISTHMIAN CANAL COMMISSIONER AND ATLANTIC DIVISION ENGINEER; C. W. LARSON, INDUSTRIAL LOCOMOTIVE DESIGNING ENGINEER, GENERAL ELECTRIC COMPANY.

by a special winding drum on the locomotive to place the vessel substantially in mid-channel. When the leading locomotives are started, they will tow the vessel; while the trailing locomotives will follow and keep all the cables taut. By changing the lengths of the rear cables, the vessel can be guided and to stop the vessel, all the locomotives are slowed down and stopped, thus bringing the rear locomotives in action to retard the ship. Therefore, the vessel is always under complete control quite independent of its own power, and the danger of injury to the lock walls and gates is very greatly lessened.

The illustration in Fig 5 shows how effectively the four locomotives keep the vessel under control and in the center of the channel, while Figs. 4, 5 and 7, give a general idea of the method of handling vessels of various sizes. They also show general views of the lock walls, towing tracks and the inclines, the steepness of the latter being especially noticeable.

The towing tracks have a specially designed rack rail extending the entire length of the track and located centrally with respect to the running rails. It is through this rack rail that the locomotive exerts the traction necessary for propelling large ships and climbing the steep inclines.

A rack rail is also provided on short portions of the return track so as to lower the locomotives safely from one level to the next. The steepest slope is 26 degrees or 44 per cent, hence the need will be seen for rack rail even on the return track, it being noted that any traction locomotive with the usual wheel drive, even with the brakes set, would begin to slide on a 16 per cent grade and therefore could not be controlled. With a rack rail, however, traction is limited only by the capacity of the driving motors and not by the adhesion of the wheel treads on the rails.

A small portion of rack rail is shown in Fig 9, "A" being the rack rail proper and "8" the approach to it. "B" is hinged at "C" so that it can be depressed on the approach of the rack pinion of the locomotive. The teeth of the approach section are under size and shaped off at the extreme end so that the teeth of the pinion will mesh properly and prevent excessive strain on the pinion and the axle. The spring "D" restores the approach to the proper position after the locomotive has passed over. The rack rail is of the shrouded type, and each tooth space has a drain hole cast in the bottom so as to carry off water and other accumulations to suitable drain pipes or ducts set in the concrete of the walls. A further feature of the rack rail is the projecting edges, which permit thrust wheels attached to the locomotive to run along the under side and prevent overturning of the locomotive, in case some unforeseen operating condition should produce an excessive pull on the towline. These thrust wheels serve to counteract the lateral component of the towline pull and the flanges act for emergency only, as the weight of the locomotive is, however, sufficient to prevent overturning with a normal pull of 25,000 pounds on the towline.

Three-phase, 25-cycle, 220-volt alternating current is used for operating the locomotives, and the current is supplied to the locomotives through an underground contact system. The collecting device is illustrated in Fig. 10. Two T-rails form two legs of the three-phase circuit and the third leg is formed by the main track rails. A specially designed contact plow slides between the two "T" conductors and transmits the power from the rails to the locomotive. This contact plow also passes through the slot opening in the conduit cover and is flexibly connected to the locomotive in such a manner as to follow all irregularities in the tracks and crossovers, and therefore insures a continuous supply of power.

LOCOMOTIVE DESIGN.

The working parts of the locomotive are supported by two longitudinal upright side frames No. 1, Fig. 11, of cast steel, connected

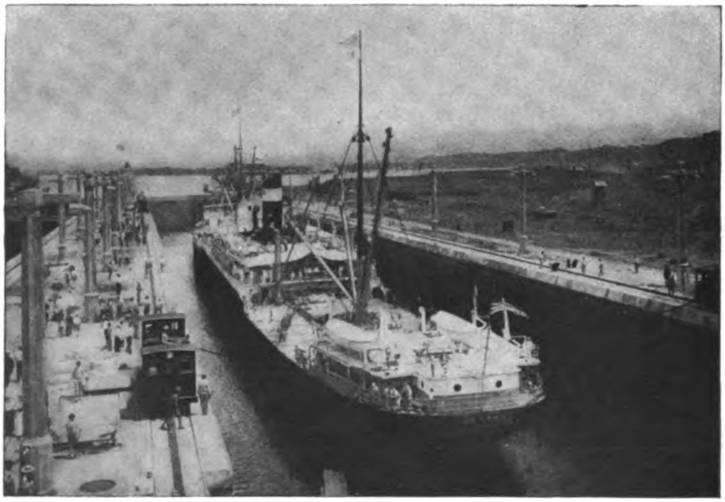


FIG. 7—OPERATION OF GATUN LOCKS. S.S. "ANCON" ENTERING UPPER LOCK FROM MIDDLE WEST CHAMBER UNDER TOW OF ELECTRIC LOCOMOTIVES, LOOKING SOUTH FROM BALCONY OF CONTROL HOUSE, JUNE 11, 1914.

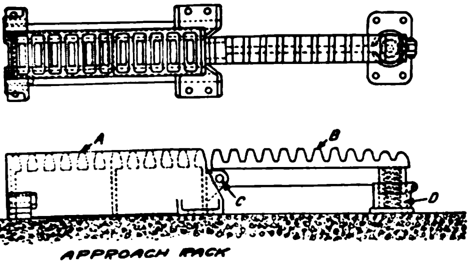


Fig. 9—Rack Rail Detail.

by transverse beams No. 2, Fig. 12. These frames are in effect deep rigid trusses, having upper and lower members connected by posts No. 5, and diagonal braces No. 6, Fig. 11. The middle portion of each frame has its upper and lower members parallel and horizontal, but the end portions have their lower members inclined upwardly towards the ends of the frame. The pedestals No. 7 for the wheel axles No. 8, are located at the junction of these end portions with the middle portion, and are of the usual locomotive type, having vertical parallel jaws between which the journal No. 9, slides. Springs No. 10, are interposed between the tops of the journal boxes and the tops of the pedestals, and the locomotive is thus mounted upon four wheels, No. 11, carried on the two axles, No. 8, the wheelbase being 12 feet, and the overall length of the locomotive over 32 feet.

Each axle is driven by its own motor, independent of the other, and, as the construction is identical at both ends of the machine, a description of one will suffice for both. A cast steel suspension bracket is hinged at one end on the axle. Its bearings which fit the journals on the axle, are secured in place by caps, which are provided with oil cellars. The bracket is provided with bearings for a transverse jack shaft, parallel to the axle; and it has pillow blocks for a countershaft, also parallel to the axle. It has a substantial horizontal platform, to support the driving motor, and its outer end is supported at each corner by two springs, placed above and below a stationary angle iron, and connected to the bracket by a bolt, so as to afford a yielding support in both upward and downward movements of the bracket.

The motor is of the three-phase, slip-ring type, enclosed and identical to the rugged steel mill design, and it is geared by a pinion and spur gear, to the countershaft, which carries a pinion, meshing with a spur gear, keyed to the jack shaft. On the outer side of the spur gear are formed clutch teeth which co-operate with similar teeth, on the adjacent side of a gear, which is sleeved upon the jack shaft and can be slid lengthwise thereon to engage and disengage the clutch teeth. The means for sliding this gear consists of a disc, secured to the gear and having a central hub fitting over the end of the jack shaft. A rod runs through a central hole in the shaft and through the center of the hub, to which it is connected by the nuts, in such a manner as to permit the disc to rotate with the wheel and, at the same time, cause it to slide the wheel axially when the rod is reciprocated. A pinion is keyed to the axle and is wide enough to mesh always with the gear, so that when the clutch teeth are engaged, the motor will propel the locomotive by the adhesion between the wheels and the rails of the track, and this only when running without load and between inclines.

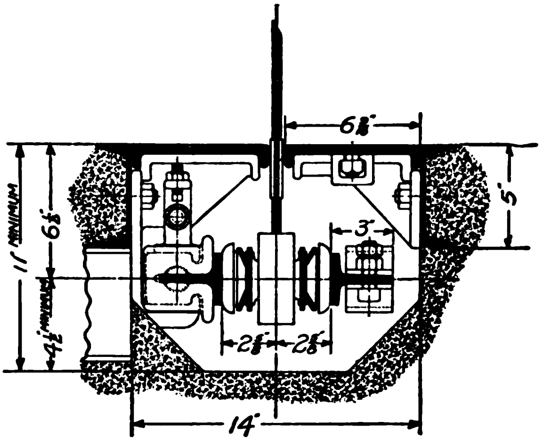


Fig. 10—Current Collecting Device Detail.

When the locomotive, however, reaches one of the inclines between the locks, the grade of which may be as much as 44 per cent, or when it is towing a ship, the cog rail system is utilized

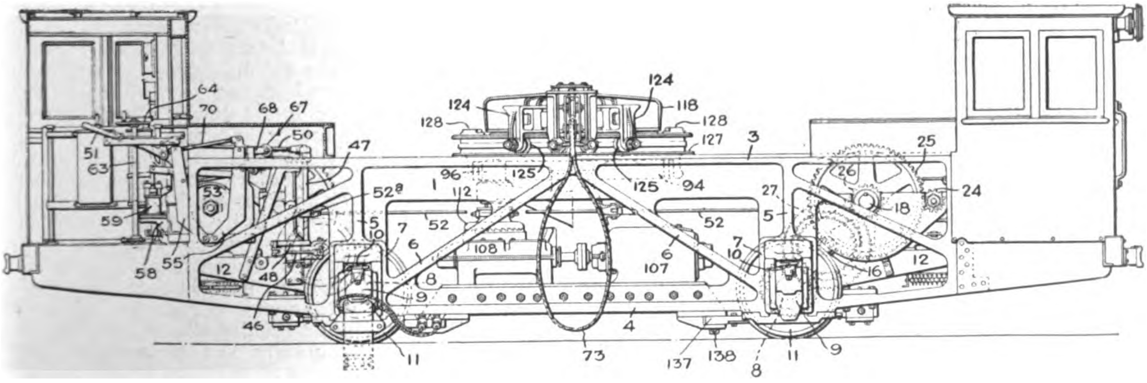


Fig. 11—Side Elevation of Towing Locomotive with Covers Removed.

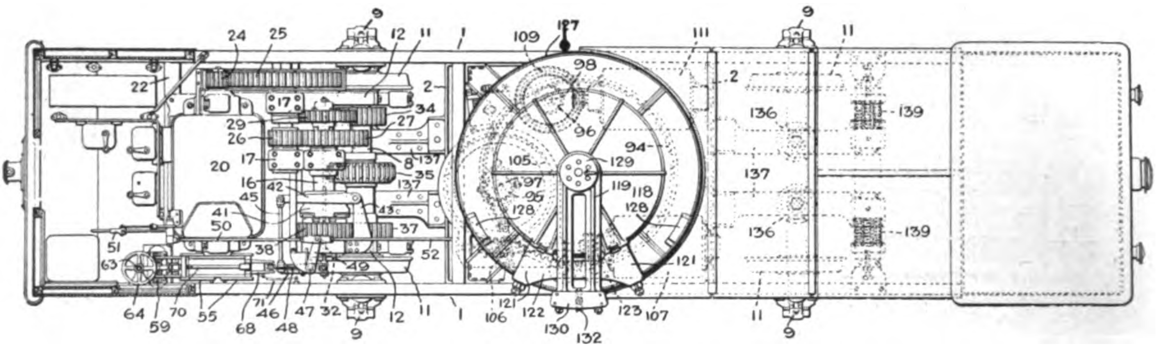


FIG. 12—PLAIN VIEW OF TOWING LOCOMOTIVE WITH COVERS REMOVED FROM ONE END.

to enable the locomotive to climb the grade and exert traction necessary for pulling large ships. The cog or rack rail is laid between the track rails and the locomotive is provided with a cog wheel or rack pinion, secured to or integral with a sleeve, which rotates freely on the axle.

A gear wheel secured to or integral with this sleeve, meshes with a gear, turning loosely on the jack shaft. Clutch teeth on this gear can be engaged by the teeth on a clutch, which is splined to a jack shaft. A two-armed lever, fulcrumed on a bracket, straddles the shaft and is pivoted to a collar, riding in a groove in the clutch. The lever is connected by a link, with one end of a lever turning loosely on a vertical rock shaft. An elastic arm is keyed to the shaft and engages lugs on the lever. The arm is composed of a laminated flat steel spring and a second arm is keyed on the shaft and connected by a rod with a handle in the cab of the locomotive. The handle can be locked by a suitable latch and notched quadrant, and the other end of the lever is pivoted to the rod, so as to throw out the clutch when the clutch is thrown in, and vice versa.

The elastic arm serves to throw the clutches automatically, it being understood that the four jaw clutches in most cases do not mesh when thrown, but the operating handle is thrown full stroke and locked. This puts the springs under heavy tension. The locomotive is then started slowly, and when the clutches are in alignment, the springs throw them without any attention by the operator. The two rocker shafts at opposite ends of the locomotives are connected by the rods, pivoted to the rocking arms, on the shafts and to an intermediate lever, fulcrumed on the pedestal supporting the winding drum.

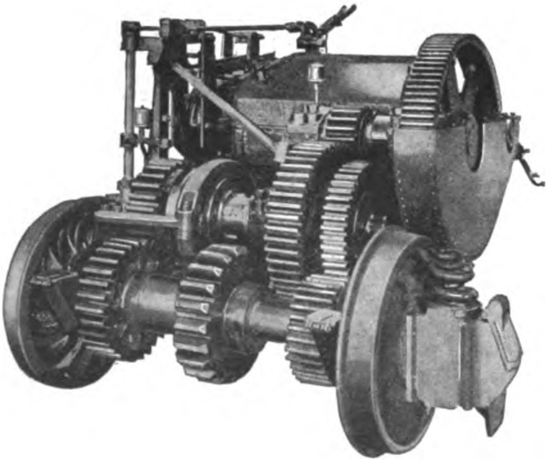


FIG. 16—PANAMA TOWING LOCOMOTIVE LSA-2E40-A. FRONT VIEW OF TRACTION MOTOR UNIT WITH JOURNAL BOX IN PLACE.

The two traction motors are controlled by suitable controllers installed in the cabs at the ends of the locomotives and the circuits are such that both motors can be controlled from either cab, and can be operated singly or in multiple as desired. Current is taken from the supply conductors by a special current collecting device, as shown in Fig. 11 previously described.

Each motor, with all its gearing and clutches, is mounted independently of the frame of the locomotive, to which it is connected only by the springs which give an elastic support for the outer end of the bracket on which the mechanism is carried.

In connection with each motor a powerful brake is installed, and, as during operation the motors are at all times geared either to the axles or to the cog wheels, the truck wheels, are not provided with any brake rigging. The motor brake is shown in Figs. 11 and 12. On the motor shaft is keyed a brake disc or drum and to opposite sides thereof are applied the brake shoes, carried by the brake levers, which are pivoted on a stationary bar projecting from a frame, which supports a solenoid. The movable core of this solenoid is pivoted to the long arm of a lever, which is fulcrumed on one of the brake levers. A rod connects the angle of this lever with the other brake lever, thus constituting a sort of toggle between the two levers. When the core of the solenoid drops, it actuates the lever and the rod in such a manner as to draw the two brake levers towards each other and thereby apply the brake shoes to the drum. The winding of the solenoid is in circuit with the controller of the motors, so that when the current is turned on to energize the motor windings, the solenoid will lift its core and thereby release the brakes. The first point of the controller raises the brakes without applying power to the motors, thereby providing a coasting point. But should the motor current be shut off, either intentionally or accidentally, the core will instantly drop by gravity and its weight will exert a powerful leverage upon the brake levers to stop the motor and the locomotive. This ac-

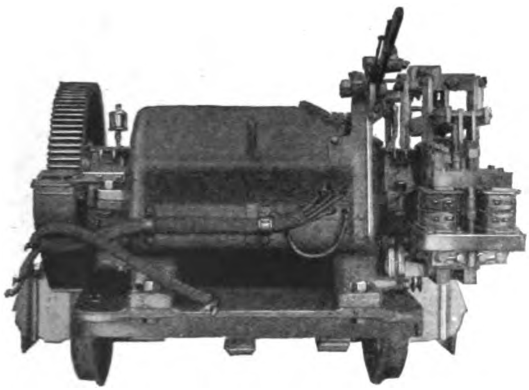


FIG. 20—PANAMA TOWING LOCOMOTIVE LSA-2E40-A. REAR VIEW OF TRACTION MOTOR UNIT.

tion occurs simultaneously on both motors, and brake action is powerful enough to stop the locomotive within two revolutions of the wheels.

In addition to this automatic brake, means are provided for applying the brakes manually in order to supplement the action of the automatic feature, if necessary, when descending a grade or where approaching a rack rail. An upright shaft provided with a hand wheel, has attached to it one end of a chain which runs under a stationary pulley, up over a pulley, on one end of an elbow lever pivoted to one of the brake levers, and thence under a stationary pulley, to the opposite end of the locomotive. The elbow lever, has its other arm connected by a rod to the other brake lever, the rod being adjustable in length as shown. The lever and rod constitute a toggle connecting the brake levers. A spring tends to lift the arm carrying the pulley and thus hold off the brake shoes. When the brake staff is turned, it winds up the chain and draws down the pulley, thereby applying the brake shoes to the drum. In this way the operator can add hand power to the effect of the electric brake and thus produce a greater braking action without interfering with the automatic operation of the solenoid.

As appears from Fig. 12, the brake levers are double. This avoids any bending strains on the pivots. The levers and the rods, constituting the two toggle systems, are located between the two members of each lever, as are also the brake shoes. The chain extends from the pulley to the similar point in the brake rigging of the motor at the other end of the locomotive, so that the operation of either of the brake staffs will apply both brakes simultaneously. It will be noted that while the hand and solenoid brake mechanism operate entirely independently of each other, both apply braking through the same levers and wheel.

SUMMARY.

The towing locomotives as described and illustrated possess the following operating characteristics:

1. While towing, the speed can be regulated from zero miles to two miles per hour.

2. While running idle, the speed can be regulated from zero to five miles per hour, permitting return trips at increased speed.

3. The windlass will pay out or wind in cable at the low rope speed and at the full tow line pull of 25,000 pounds, either when the locomotive is running or at rest.

4. The windlass will pay out or coil in cable at the high rope speed with the tow line taut, either when the locomotive is running or at rest.

5. The windlass is equipped with a safety friction device, which is adjustable to any predetermined value of the tow line pull.

The first impression may be gathered that these machines are somewhat complicated; but,

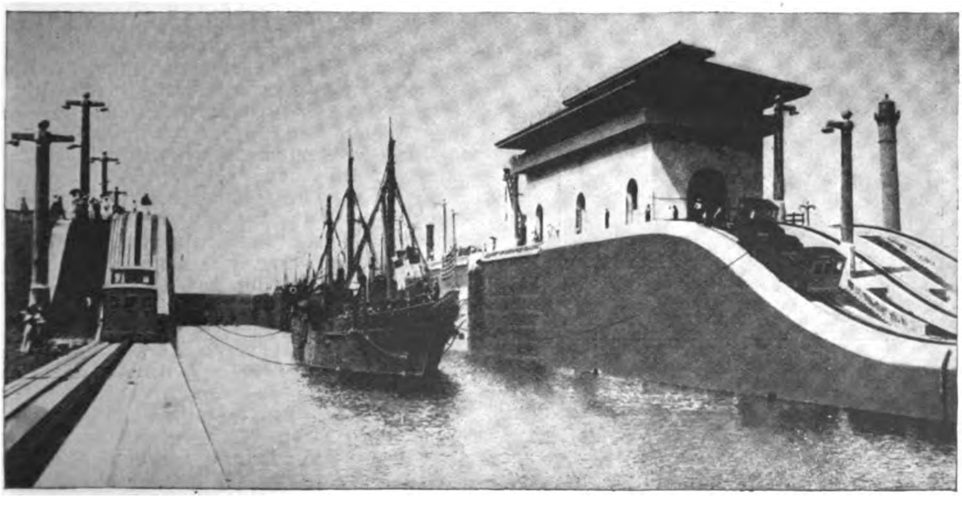


FIG. 4.—OPERATION OF GATUN LOCKS. U. S. "SEVERN" (TENDER) LEAVING UPPER EAST CHAMBER IN TOW OF ELECTRIC LOCOMOTIVES, APRIL 15, 1914.

considering their many functions and the great flexibility for performing them, the design is in reality peculiarly simple. The locomotives have fully demonstrated in actual operation that the requirements contemplated by the engineers of the Isthmian Canal Commission under Circular 650 have been successfully met.

The locomotives have a net weight of 86,300 pounds and a gross shipping weight of 92,500 pounds. They were mounted on specially designed skids and shipped by rail to New York, where they were loaded on board the ships as deck cargoes by means of a Merrit-Chapman 125-ton floating derrick. The illustration in Fig. 42 shows a locomotive being loaded on S. S. "Ancon," which in this case carried six locomotives to the Isthmus.

During the first three months of commercial operation of the Canal, from August 15th to November 15th, the cargo transported through the Canal and towed through the locks by the locomotives amounted to 1,079,521 tons. During the fiscal year ending June 30, 1914, the Panama Railroad carried 643,178 tons of through freight between the two seaboards, and in the preceding fiscal year 594,040 tons. From this it is seen that between six and seven times as much cargo is passing over the Isthmus now as passed over this route when goods were transshipped by rail.

Organized Co-Operation Versus Spasmodic Individual Effort

By T. S. FORD, AUDITOR, SAN ANTONIO, UVALDE AND GULF RAILROAD.

NOTE.—Mr. Ford prefaces his article by stating that "When the Government owns the railroads a lot of things mentioned herein and many smaller things, will be a reality, not a theory." Like a true Irishman, however, he adds, "But the Government will never own the railroads, nor participate financially in them; it prefers to run them, free of all responsibility and will continue to do so with increasing authority until there is some concerted defense by the railroads. The railroads might as well accept this situation and meet conditions."

T. S. FORD.

THE railroads of the country will probably find in the end that the relief they seek and must have to avert ultimate bankruptcy with many of them, must come through their own organized efforts or through their own organized co-operation rather than spasmodic individual efforts or through the philanthropy of law making bodies or the general public. Whatever does come will be because they make it come.

Their lack of organization and co-operation is reflected both in revenues and expenses. If argument, pleas or threats fail to produce increased revenues, there are yet other remedies no less certain that lie within themselves to apply.

For the past thirty-five years railroads have voluntarily thrown away annually millions of dollars revenues by use of mileage books, scrip, credential tickets, etc., and they are doing it to-day. If the legal rate is three cents per mile why reduce it one third by such devices. There never was and is not to-day a ghost of a reason to give a drummer with eight sample trunks a two-cent rate any more than a man with overalls and eight children. The drummer can tack it onto the consumer anyhow, the man with eight children can't. For fear the sample trunk man will route his freight some other way, railroads fall over each other to give him reduced rates, all of which could have been and can be eliminated by organization and agreement not to do it.

Less important is the abuse of excess baggage privileges. Fully 25 or 50 per cent of excess baggage is never collected for various and sundry reasons. The man with sample trunks or an annual pass will pay hundreds of dollars excess baggage with cigars.

Twenty-five millions of dollars are spent annually for "Outside Agency Expenses" which were never contemplated in the institution of rates and entirely or mostly unnecessary, except to follow suit because others do it. The local agencies in a city could take care of the business if they would. It might take a few more clerks and telephones but it can be done. Now, let one railroad rent a five hundred dollar per month city office and put on a thousand dollar staff and every competitor will rent an eight hundred dollar office and put on a fifteen hundred dollar staff and collectively they won't get a dollar more business than without this expense.

Over ten millions go annually for advertising, part necessary and part not. A time table in the local papers and economical printed matter are necessary. Elaborate folders, advertising bureaus and pages of advertising are superfluous in these days when everybody knows the country anyhow. This expense was never contemplated in the institution of rates and could be abolished by railroad organization.

Terminals costing anywhere from one to thirty millions are doubtful advocates of increased rates, but monuments to increased interest charges, and don't contribute a dollar more business for the roads than terminals costing 1-4 or 1-10 as much. There should be fewer vestibuled trains and more mixed trains unless it is known for a certainty the vestibule does pay, not as an advertisement but in real money. Laws don't compel fancy trains nor prevent their discontinuance. It is strictly within the control of the management to regulate according to known necessity. The public deserves what the revenues justify, nothing more.

Dining cars at prohibitive rates now operate at a loss, when a popular one-price meal at straight 50 cents per, no more, no less, would attract more passengers who pay real money for riding, though less popular perhaps with Dead Heads and passengers having expense accounts to stuff. A train with a 50-cent dining car would get the passengers and at the same time make the car pay.

Railroads load themselves up with interest bearing notes for purchase of new equipment instead of wearing out the old first, just as a farmer mortgages his farm for a new fangled machine because his neighbor has one and leaves his old to rot in the field and then finds out he has no more land to farm after all. What is actually known of the outcome when a lot of 100 ton engines are bought? Are they going to increase the revenues to the extent of the cost of the engines plus increased maintenance to track, plus cost of strengthening bridges, plus interest on the costs, plus depreciation of new over old, plus loss by abandonment of old, plus increased maintenance and operation of new over old during the life of them, less what they get for the old as scrap or as unloaded unto some small railroad who can and is glad to use them. Are these results actually calculated before hand or are they guessed at because it's the fashion to have 100-ton engines instead of 50 or 75-ton engines?

Most important of all is the labor question, and the most far reaching of this is the sympathetic strike. Does it need any clairvoyance to see what it would do for railroads if the bars were put up for keeps against the sympathetic striker? The right to strike locally for betterments of personal conditions is admitted. The sympathetic strike is indefensible legally and on every other ground.

The cost of compliance with various state and national laws would furnish details to fill a book and yet railroads know absolutely nothing about this cost. There has been no organized or systematic effort to find out, and the scope ranges from furnishing ice water for the public at large to the mail revenues railroads earn and don't get, not forgetting the clerical services for making various and sundry reports. Concerted action would figure this cost and probably find that it exceeds annually many of the expenses enumerated above. This cost once ascertained would be a lively advocate of increased rates and what is more would compel them to that extent at least.

In the face of these things is it any wonder that the grievance committee of five or six railroads would receive from our President his gracious and diplomatic sympathies, of course, but if they got nothing else the other 1,499 railroads who were not represented, but should have been, have not heard of it.

Small roads, though seldom direct parties to all of these affairs are affected by them nevertheless. Extravagancies of the big roads in terminal expenses, transportation expenses and wages, automatically and arbitrarily affect the little roads similarly, and influence the divisions which they are able to obtain on freight traffic interchanged.

This is not an argument against increased rates, they must and will come (when railroads make them). These are alternatives and should be done anyhow. These are a few things railroads can do "Without the aid or consent of any nation on earth." Not all they can do by any means, probably not 1-2 or 1-10 they can do.

If railroads agree among themselves to do or not to do these things, who is going to prevent them? It is not an organization in restraint of anything except their own folly. It is organization for their own protection. It is one principle of a great National Railroad Protective Association, another provision of which is a national legal department for defense against unjust laws and the compelling of just laws.

A NATIONAL RAILROAD ASSOCIATION OF AMERICA (LEGAL DEPARTMENT.)

That the railroads of this country are hopelessly buried in a mire of antagonistic legislation, is a condition for which, in my opinion, the railroads can largely thank themselves.

First, that misconduct, actual or implied should have brought it upon them, and second, their childlike acquiescence and easy chair submission instead of systematic efforts to free themselves.

Thirty years in the railroad business has demonstrated to me that railroads need organization. Every branch of railroad labor has an organization and generally get what they want. The railroads themselves get nothing but contempt and receiverships for lack of it. Railroads can't agree on anything and then stand pat and fight for it. The time has arrived to form a "National Railroad Association of America," to be constituted of proper and necessary officers for the management of it and primarily to consist of competent legal talent, in numbers equal to the members of the Interstate Commerce Commission and the Supreme Court of the United States combined.

This legal array will meet the Interstate Commerce Commission or the courts of the States or United States on equal grounds in whatever strength, numerically, is necessary. They will be detailed to consult or supervise any kind of a railroad case whether at Hay Corners or Washington, D. C.

This legal staff will not only know the law as it is, but as it should be. They must have the capacity to ignore ancient precedents and analyze things as they exist and from the standpoint of common sense. They must find a way that justice can break into this game, if it takes dynamite to do it.

They must devote their entire time to this railroad work, and not compromise themselves by codes of ethics observed in private practice. They must not accept as conclusive any law that is not based on common sense and justice but must everlastingly oppose such laws.

Instead of quoting ancient laws from the archives of some other country, they must make laws to fit the conditions of to-day in this country. This legal staff will be selected for their actual efficiency to produce results and not their capacity to run up expense accounts and draw their pay. They will be paid salaries commensurate with the requirements of the position and their term of office will depend upon themselves. They will be the consulting staff of the legal departments of the railroads, members of the association.

The expenses of the "Railroad Protective Association of America" will be paid by assessing its members pro rata upon their capital liabilities.

This association must embody not only the principles of right and justice to the railroads from a railroad standpoint, but it must provide for the absolute eradication of all outrageous practices that have brought railroads into general disrepute, as a result of which the thousand or more honorable ones share equally the condemnation caused by a few.

This thing of whether the parties who provide the cash for an enterprise, will manage the investment, or whether they will look on while some one else does it for them through rights usurped by main force; this thing of whether under these conditions the investors will stand the deficits or whether the usurped power shall stand them will be fought to a standstill. Some day railroads will do this thing. Mark that.

Railroad Expenses Due to State and Federal Regulations.

There should be kept by the railroads of the country an income account, called for example, Expenses Due to State and Federal Regulations, which should include everything from cost of furnishing ice water to the public at large to the loss of mail revenues which the roads earn and don't get.

On July 29 and September 22, 1914, the writer recommended this matter to the attention of the Association of American Railway Accounting Officers, but whether this subject was considered unimportant, or whether on account of the insignificant source from which it emanated, is not known, but at any rate no cognizance was taken of the two communications.

It would not be my idea to include expenses such as betterments to the property, which are in their nature a benefit to the property, for example, interlocking devices, automatic couplers, etc., but only actual expenses which railroads of their own accord would not incur, and losses of revenues resulting from State and Federal regulations. A few of the most important are mentioned.

Estimated loss of mail revenues earned but not paid for by the Government.

Losses due to arbitration that the railroads would not otherwise sustain if they were not compelled to arbitrate.

Reductions in previously existing tariff rates, less additions allowed in tariff rates.

Expenses of rendering weekly, monthly and annual reports to State and Interstate commissions.

Additional expenses by reason of adoption of the new classifications of Interstate Commerce Commission, July 1, 1914, the old classifications being preferable and satisfactory to railroads.

Expenses of accounting, traffic, and other railroad associations necessitated by the intercourse with State and Interstate commissions.

Expenses of tariffs filed with commissions.

Expenses due to Federal valuation of railroads.

The above do not cover the entire ground by any means, they only scratch the surface. A complete text pertaining to this subject would have to be originated and include every sort of expense railroads have to bear by reason of all forms of state and interstate laws, requirements, regulations and reports. This would include a multitude of items that would have to be thought out and worked into the text.

Most or all of these expenses are now spread out and absorbed in operating expenses, for instance: the expense of clerk hire in auditor's offices, for making reports and statistics to commissions; cost of tariffs furnished, etc.; because they are not operating expenses at all, they are income expenses deducible along with taxes, rentals, hire or equipment, etc.

These items of expenses are never taken into account in the institution of rates allowed railroads. The fact is the burdens and expenses of complying with these regulations have grown from the inception of the different commissions. They have grown for thirty years or more from nothing to extraordinary proportions, so gradual that nobody has stopped to take note of it.

The railroads of the country should not have waited thirty years to do this thing. They should have seen to it long ago, and have this great item of expense where they could put their fingers on it and show law making bodies, the public and everybody what it amounts to.

In the writer's opinion this is one of the biggest, and most essential things that has come up in railroad accounting in years, and the wonder is that railroads have been asleep on it instead of doing it. As an advocate for increased rates, if the railroads of the United States could put up a combined figure of this cost they would have not simply an argument, they could force an increase to that extent or else bill the expense on the Government, one or the other is certain. The law makers and commissions of the country have become so accustomed to getting everything they want regardless of cost, and the railroads so busy furnishing it, and maintaining their "Easy Chair" policies that the gradual and enormous growth of this expense has escaped unnoticed.

These suggestions may not be new, but the writer has never seen the subject referred to prior to his first letter to the Association of American Railway Accounting Officers, July 29, 1914.

Whether the Interstate Commerce Commission would entertain the proposition of this extra income account, is not known and is perhaps immaterial, since there is nothing to prevent the railroads from keeping it for their own information and the cost of doing it would become another item for the text.

There will probably be the same vacillation in this as in other matters for lack of railroad organization and co-operation.

The American Commerce Association

NOTE.—The following paragraphs deal with a new national association of traffic men which has recently been organized at Chicago. The object of the organization is to set standards of efficiency for employers and employes, as it is believed that the present tremendous waste of time and money in traffic work, demands employment of trained men. The RAILWAY WORLD is in entire sympathy with this movement, as it believes it will not only develop more harmonious relations between those who employ and those who operate the railways, but will serve to more fully inform the business men of the country regarding rate matters and thus enable them to more intelligently and economically employ our transportation agencies. In the future there will be a new department in the RAILWAY WORLD devoted to the traffic efficiency clubs of this Association, located in the various cities of the country. Under this heading practical railroad and industrial traffic matters will be discussed.

PROMINENT traffic men representing all parts of the United States and connected with the leading industries, railroads, and associations of commerce, have organized a national traffic efficiency association and have set a standard of efficiency for traffic men.

This Association will assist its members in attaining the required standard of efficiency in traffic work, act as a kind of clearing house between employers and employes, help in the diffusion of a practical knowledge of traffic and generally elevate the traffic profession. This national organization of traffic men for traffic men and by traffic men is incorporated under the laws of the State of Illinois for $200,000 and is known as the American Commerce Association.

The membership in the Association is by invitation and approval of the Membership Committee. There are three classes of members:

(1) *Junior Members.*—Those who are anxious to attain a practical knowledge of traffic work and sell their services in the traffic profession at a salary commensurate with their efficiency.

(2) *Senior Members or Fellows.*—Those who are engaged in some scientific or systematic research or study of traffic work and who have attained the required standard of efficiency as required by the Traffic Efficiency Board of Judges.

(3) *Honorary Members.*—Those who have attained distinction in the traffic profession. Among these are many of the most prominent traffic men in America.

Among the members of the Association are some of the most prominent traffic men in America. The following is a partial list:

J. C. Lincoln, commissioner, Transportation Bureau, Merchants' Association, New York, N. Y.

Wm. Cameron, chairman, St. Louis East-Bound Freight Committee, St. Louis, Mo.

Ira Bassett, commissioner, Pittsburgh Commercial Club, Pittsburgh, Pa.

N. P. Anspach, chief of Tariff Bureau, Lake Shore and Michigan Southern Railway, Cleveland, Ohio.

H. S. Kealhofer, manager, Traffic Bureau, Chamber of Commerce, Atlanta, Ga.

H. Bernstein, manager, Grain Inspection Department, Joint Rate Inspection Bureau, Chicago, Ill.

J. M. Guild, commissioner, Commercial Club of Omaha, Omaha, Neb.

W. E. Cullen, traffic director, The Associated Industries, Chicago, Ill.

W. D. Morganroth, traffic manager, W. H. Johns-Manville Company, Milwaukee, Wis.

F. A. Barber, chief of Traffic Bureau, Wabash Railroad, St. Louis, Mo.

N. B. Kelly, commissioner, Philadelphia Chamber of Commerce, Philadelphia, Pa.

W. E. MacEwen, traffic manager, Peerless Transit Line, Cleveland, Ohio.

C. W. Chears, traffic manager, Cotton Manufacturers' Association of Tennessee, Chattanooga, Tenn.

W. M. Campbell, traffic manager, Merchants' and Manufacturers' Association, Milwaukee, Wis.

J. P. Gardiner, traffic agent, United States Cast Iron Pipe and Foundry Company, Chicago, Ill.

Frank R. Garrison, Central Freight Association, Chicago, Ill.

W. J. Tomkins, traffic commissioner, Independent Salt Manufacturers, Chicago, Ill.

L. C. Macomber, traffic manager, The Woolson Spice Company, Toledo, Ohio.

E. C. Ward, editor, THE RAILWAY WORLD, Philadelphia, Pa.

C. R. Clements, traffic manager, Scott Paper Company, Philadelphia, Pa.

John Byrne, traffic manager, Spokane Merchants' Association, Spokane, Wash.

Thos. D. Fitzgerald, claim department, Chicago and Alton Railroad, Chicago, Ill.

W. T. Stevenson, assistant general freight agent, Cleveland, Cincinnati, Chicago and St. Louis Railway, Cincinnati, Ohio.

L. E. Oliphant, chief of tariff bureau, Lake Erie and Western Railroad, Indianapolis, Ind.

F. E. Spencer, manager, The W. W. Martin Company, traffic manager; publishers "The Chicago Freight Rate Guide," Chicago, Ill.

S. L. Straus, chief of tariff bureau, Grand Trunk Railway, Chicago, Ill.

C. B. Sudborough, assistant general freight agent, Vandalia Railroad, St. Louis, Mo.

A railroad or industrial enterprise cannot rise above the efficiency of its employes. Efficiency stands for the one best way and cheapest way of doing each piece of work in the quickest time with the least effort, and with a maximum of profit. It eliminates friction and waste.

Ever since the passage of the Hepburn amendment, the Interstate Commerce Commission has scrutinized railroad freight rates and constantly brought to light great deficits in the efficiency of traffic employes.

Traffic work is rapidly becoming standardized and a measure of the competency of the traffic men has become indispensable. This standard has been set by the Advisory Traffic Council of the American Commerce Association, and it is fully described in the American Commerce Association Docket No. 20, giving a full analysis of every subject pertaining to interstate commerce, railroad traffic, and traffic management work. This syllabus represents the information used daily by the most successful men who are handling the great traffic problems of America.

Any man who does not know how to determine the legal charges on shipments; to ascertain if those charges are reasonable or non-discriminatory; to dispatch goods to destination when time is a factor; to reduce losses and damages to a minimum; to organize and manage a traffic department so that the greatest results may be attained with the least expense; to adjust the rate structures so that business may be developed in competitive territories and to successfully handle a traffic position, is not up to the required standard of efficiency.

The twenty most essential duties of the traffic men are as follows:

1. How to ascertain when through rates apply on shipments.

2. How to ascertain when combination rates apply on shipments.

3. How to ascertain when class or commodity rates or a combination of class and commodity rates or exceptions apply on shipments.

4. How to ascertain when special freight services or allowances apply on shipments.

5. How to know what routing or gateways should be used on shipments.

6. How to ascertain what special restrictions in the tariffs apply on shipments.

7. How to classify and pack shipments moving on class rates.

8. How to reduce losses and damages in freight shipments to a minimum.

9. How to dispatch shipments to destination when time is an essential factor.

10. How to interpret the tariffs, know who publishes them and compute all legal freight charges on all kinds of shipments between all points.

11. How to ascertain if the charges in the tariffs are reasonable and non-discriminatory.

12. How to get unreasonable and discriminatory charges adjusted.

13. How to ascertain the legal rights and duties of shippers and carriers under the interstate commerce and the state laws.

14. How to prepare, deliver and compute all legal freight charges on export and import shipments.

15. How to ascertain the rights and duties of railroads and shippers under the common law of carriers.

16. How to organize and manage a traffic department, obtaining the greatest results in the least time with a minimum of expense and a maximum of profit.

17. How to scale and adjust rates to meet market competition and extend business in competitive territory.

18. How to ascertain comparative charges by freight, express, or parcel post on package shipments.

19. How to determine, prepare, file and successfully handle loss, damage and overcharge claims.

20. How to attain the co-operation of traffic men and analyze traffic and trade conditions for the attainment of greatest efficiency in traffic work.

Without the above information it is impossible for the traffic man to successfully do his work in the quickest time with a maximum of profit.

The present status of traffic efficiency is clearly illustrated by the railroad clerk, who approached his superintendent and asked that his salary be increased. He informed him that he had been working faithfully for fourteen years and felt he was entitled to promotion.

It was the personal desire of the superintendent to promote this employe, but no more money could be paid for the kind of work this employe had been doing. After telling the employe he would give him another job, which paid more money, the superintendent said: "Can you do the work on Jim's desk?" The clerk confessed that after fourteen years of faithful service, coupled with industrious and sober habits, he could not fill the place.

He was 50 per cent efficient in service; a kind of efficiency that is measured by the inverse ratio of the square of the top of the desk to the clock on the wall. He represents that vast army of railroad men who swell the red ink appropriations of the claim department or the revising desk. After fourteen years of service this employe had not learned "traffic" even in one small office. The value of his experience had simply tricked him into a mediocre clerical existence from which advancement and promotion were practically impossible.

The limited circle of experience of most men engaged in traffic work makes it impossible for them to prepare for the many responsible positions needing competent men in the traffic world.

The great opportunity of the traffic man to serve the railroads or the shippers is not appreciated. Traffic labor costs about 1,000 millions of dollars annually—the largest single item of expense. It is claimed that traffic men are only about 50 per cent efficient. An increased efficiency of 30 per cent will make a saving of 300 millions of dollars.

The present freight rate per ton mile is 7.57 mills. A loss or an increase of 1-20 of 1 per cent in the freight rate on the total tonnage of the carriers will make a loss or a gain of 125 millions of dollars. How great then is the responsibility of the traffic man?

Many traffic departments are bringing about higher standards of efficiency, but the rank and file of the vast army of traffic men must be readjusted to the new conditions, and this may only be accomplished by establishing a high "standard of efficiency."

How much time is daily wasted by the average traffic man in finding out the one best way of doing his work? Before efficiency methods were applied to the Santa Fe, the maintaining of locomotives cost $93.63 per unit, but after efficiency standards the cost was reduced to $50, almost 50 per cent.

Increased labor efficiency would also result in a more intelligent analysis of all factors entering into traffic work. It would eliminate a large percentage of the estimate waste of 175 million dollars in the inefficient use of supplies.

It is claimed there is only a 60 per cent efficiency in the use of lubricating oil; 30 per cent efficiency in the use of stationery; 50 per cent efficiency in the use of coal and 85 per cent efficiency in the use of locomotives. Efficient traffic men have an unlimited field in which to apply their knowledge.

Did not General Miller, through scientific analysis of lubricating oils, increase the efficiency of distribution 30 per cent; reduce the price efficiency 25 per cent, and increase the efficiency of supply 20 per cent? If this can be done with lubricating oils, what can be done with intelligent human service?

Those men connected with the American Commerce Association, who are engaged in training traffic men, are performing a wonderful service for the men of the future, making it possible for them to grasp quickly and effectively a thorough knowledge of the transportation business and its controlling conditions. It should be the imperative wish of every progressive traffic official, that all employes avail themselves of every such opportunity to increase their efficiency and value.

The American Commerce Association is completely equipped to assist all men in and on their way to the higher executive traffic positions. The Association through its Advisory Traffic Council and Board of Contributors and Authors has brought together all the most authentic practical, up-to-date, information available on interstate commerce, railway traffic and traffic management work, in the form of 33 volumes, forming a complete traffic library for the professional traffic man.

The Association, through its ten standing traffic committees on classification, rates, tariffs, car efficiency, special freight service, industry, commerce and interstate commerce law will present to the members from time to time in addition to the standardized traffic information in the library, all the most authoritative information available on all subjects not yet standardized in the form of Traffic Monographs.

The members of the Association in the leading traffic centers organize themselves into Traffic Efficiency Clubs which have the support of the parent organization in supplying national programs of work consisting of traffic lectures, moot practice, debates, and the systematic study of selected subjects from time to time, the aim being to duplicate in the club work what actually takes place in real practice and experience.

The certificate of membership entitles one to membership in the National Traffic Efficiency Organization of the traffic men of America, whose motto is: "*Each Helps Each and Each by Each is Helped.*" Every profession has its national organization for the promotion of the profession and the protection of those who are sacrificing their lives in their chosen work. Membership in the American Commerce Association stamps a man as having attained distinction in the traffic profession.

With these various services, benefits and privileges a 30 per cent increase in the efficiency of traffic men is comparatively easy and when this increase in efficiency has been attained the men who are now handling traffic work will have an intelligent understanding of every angle of the business and its relation to the public. It means creating a comprehension of details resulting in an intelligent co-operation between carriers and shippers. It means a reduction in the expense of maintenance and increase in profits and patronage.

The services, benefits and privileges of the American Commerce Association furnish everything necessary for the promotion of efficiency among traffic men. These services are as follows:

I. The Traffic Library.—The Association, through its Advisory Traffic Council and Board of Authors and Contributors has brought together all the most authentic, practical, up-to-date experience and information available on interstate commerce, railway traffic, and traffic management work, in the form of thirty-three volumes, forming a complete traffic library for the professional traffic man.

II. The Traffic Efficiency Syllabus.—Traffic work is rapidly becoming standardized and a measure of the efficiency of traffic men has become indispensable. The standard of efficiency has been set by the Advisory Traffic Council of the American Commerce Association, and it is fully amplified in the A. C. A. Docket No. 20, giving a full analysis of every subject pertaining to interstate commerce, railway traffic and traffic management work. This syllabus represents the information used daily by the most successful traffic men who are daily handling the great traffic problems of America.

III. The Traffic Monographs.—The Association through its ten standing traffic committees on classification, rates, tariffs, car efficiency, special freight services, industry, commerce, freight claims demurrage, and interstate commerce law, will present to the members from time to time, in addition to the standardized traffic information in the library, all the most authoritative information available on all subjects not yet standardized, in the form of Traffic Monographs.

IV. Traffic Training Services.—The required standard of efficiency may be attained by the systematic study of the experiences of successful men. The Advisory Council of the Association has established a special "Experience method" of training for men, covering (1) Freight Rate Accountancy; (2) Rate Adjustment Work, (3) Claim Revisions, (4) Traffic Department Efficiency, and (5) Interstate Commerce Law, preparing for the higher executive traffic positions and bringing men up to the required standard of efficiency set by the Traffic Efficiency Board of Judges.

V. Traffic Promotion Service.—Traffic men must now be placed on the efficiency test basis. They must have the qualifications for doing the particular work assigned. The efficient man at a good salary is cheaper than the novice at a low salary. Every dollar of wasted freight money by carriers or shippers represents wasted profits. The Traffic Promotion Service determines the efficiency of traffic men, ascertains the kind of a man required for a given position, and aims to place the right man in the right place, resulting in a minimum of expense, a maximum of profit, and a salary commensurate with services rendered.

VI. Traffic Publications Service.—Permanent reliable records of the experiences of experts in traffic work is indispensable to rapid progress. Our Traffic Publication Service furnishes all the standard traffic publications at a discount, points out the best sources of information on any given subject and supplies monographs on traffic subjects not yet standardized prepared by the ten standing traffic committees of the Association. It puts in permanent concrete form the practical experience and knowledge of the members of the Association that it may be disseminated to the other members.

VII. The Expert Traffic Service.—Reliable advice relative to classifications; tariffs, the traffic and rate territories; construction and application of rail, water, express and parcel post rates; package and packing requirements; reference to rulings of the Interstate Commerce and State Commissions; also suggestions pertaining to traffic management. The purpose of the Association is strictly educational and none of its resources are available in rate or classification adjustment cases.

Our consulting traffic experts represent every important traffic territory, trade center and local traffic condition in America, and they can render a service not available through any other organization. Membership in the Association means membership in a fraternity of traffic experts.

VIII. Association Membership Certificate.—This is a membership certificate in *The National Traffic Efficiency Organization of America.* The motto of the Association is: *"Each Helps Each and Each by Each is Helped."* Every profession has its national organization for the promotion of its interests and the betterment of those who are devoting their lives to their chosen work. Membership in the American Commerce Association is by invitation only and by approval of the Board of Directors, and it stamps a man as having attained distinction in the traffic profession.

IX. Traffic Efficiency Clubs.—The members of the American Commerce Association in the leading traffic centers may organize themselves into traffic efficiency clubs which will have the support of the parent organization in supplying national programs of work, consisting of traffic lectures, moot practice, traffic debates, and the systematic study of selected traffic subjects from time to time. Traffic efficiency clubs will have their own officers, consisting of president, secretary and treasurer.

X. THE RAILWAY WORLD.—The proceedings of the Association are reported in the RAILWAY WORLD, a monthly journal, presenting an accurate and comprehensive review of current events pertaining to transportation, commerce and finance, and affording a medium for the development of a clearer understanding of the mutuality of interest which exists between the carriers and the shippers. This journal keeps the members right up to date on transportation affairs. A year's subscription to the RAILWAY WORLD is included in the general membership of The American Commerce Association.

The Traffic Efficiency Club referred to in previous paragraphs has for its object the exchange of practical knowledge and experience relative to interstate commerce, railway traffic and traffic management work. At its meetings are discussed the practical traffic problems of business concerns railroads and communities and an effort made to disseminate practical knowledge of traffic work, industry and commerce.

The following program has been arranged for the February meetings of this club:

PROGRAM—FEBRUARY 4.

16. The Shipment of Explosives—Speaker to be selected.
17. Moot Classification Committee Case.
18. Publicity and Legislative Committee Report.
19. Traffic Territories and Rate Points in Southern Classification Territory (See Docket—page 6).

FEBRUARY 18.

20. Car Efficiency and Shortage—Speaker to be selected.
21. Application of Tariffs between and from Points in the Trunk Line and New England Freight Association Territories to Defined Territories (See Docket—page 39).
22. Moot Railroad Rate Adjustment Case.
23. Question Box Committee Report.

A New Unit Freight Bill—Its Expense Reducing Possibilities

THE Unit Bill frequently discussed by railroad officers as a possible factor in reducing clerical work and pay rolls of freight stations has been given a more practical form, definite utility and broadened economic possibility by an ingenuous arrangement of the Fanfold type of bill, whereby a series of copies of the waybill are securely sealed beneath that document in semi-envelope form, in a way which insures their transmission with the freight or otherwise, without loss, mutilation or soiling, to the destination or junction point station where such copies are to be used. The physical sealing arrangement which is simple and wholly practicable, and also a set of forms so arranged that the one writing operation by which the waybill is made, makes a maximum of eight copies on forms continuously connected, which are designed to fully serve every purpose of the destination or junction point station and of the forwarding and audit offices, were designed by C. D. Trueman, of Cleveland, and will be manufactured and printed by the A. S. Gilman Printing Company, of that city, by whom the continuous Fanfold type of freight bill so widely used by railroad and steamship companies was originated and is now controlled. This type of Unit Bill is of two distinct forms and embodies also, a two part insert prepaid receipt for use in connection with shipments on which the freight is prepaid.

One form intended for use between stations of the same railroad or system of railroads provides the waybill, freight bill, freight receipt, postal notice, freight tally and cashier's copy for the destination station, one copy for the forwarding station and one copy for the audit office. The other form which is for through Interline billing purposes provides a waybill intended to accompany the freight to its connecting line destination station, and two copies which are to be sealed beneath the waybill and in that form accompany the waybill under protection of the "Safe Seal" arrangement to the junction point, where such copies will be detached, one of them to be there retained as connecting line agent's passing record and one of them to be by him signed and returned to the agent of the delivering road as his receipt for the freight involved, thus entirely eliminating the work and cost of writing the documents necessary to properly accomplish delivery at destination station in instances where the originating and destination stations are on the same railroad or system of railroads, and eliminating also the work and expense of writing at junction points the connecting line receipts and passing records for freight interchanged on interline billing. The interline form also provides copies of the original waybill for as many as four participating foreign line auditors.

The designer of this physical arrangement and form of bill has for sometime past persistently advocated the possibility of reducing the cost of freight station operation, and of generally expediting the work of that department of railroad service by revolutionary changes of method and practices in that and related departments, which he regards as practicable and capable of producing more direct methods and eliminating duplication of clerical work, and has in substantiation of one theory of such possibility contributed to the Unit Bill a tangible and practical utility for local purposes, and reversed the almost universal opinion that this type of bill is impracticable for interline purposes, by contributing a form designed and physically arranged in a way which it is claimed will in practice eliminate somewhat more than 50 per cent of the work and cost of writing bills for freight destined to stations of the road or system of roads on which the originating station is located, and 100 per cent of the work and cost of writing passing records and connecting line receipts at junction points for freight interchanged between two railroads on interline billing, thus developing the expense reducing possibility of the Unit Bill more fully than has heretofore been felt possible, and rendering it practicable for a purpose heretofore regarded as impracticable.

Its originator advances a series of interesting cost figures and a number of logical reasons why it is practicable and economical.

National Organization for Handling Loss and Damage to Freight

THE General Managers' Association of the Southeast was the first association to commence an active and comprehensive movement, looking towards the reduction or elimination of the loss and damage evil, and the first meeting extraordinary, in Atlanta, called by and held under its auspices on April 9, 1908, attended by delegates from all branches of the railway and steamship interests, may properly be deemed the opening of the present widespread campaign against freight loss and damage.

On September 9, 1910, a second meeting extraordinary was held in Atlanta, which was attended by 126 delegates from all sections of the country, and it may be said to have marked the second stage of the agitation by the adoption of the following resolution:

"WHEREAS, It is the sense of this meeting, attended by delegates from the country at large, that while the objects of the General Managers' Association of the Southeast are most commendable, the questions involved are distinctly National, instead of sectional, and the proper results cannot be obtained without the harmonious co-operation and united effort of all sections; Therefore, be it

"*Resolved,* That this meeting requests the General Managers' Associations of New York, Chicago, St. Louis and Texas, to appoint committees on loss and damage, to work along the lines of the similar committee of the Southeast—

"Looking to the establishment of a Bureau for the whole country, either independently or as a part of the organization of the American Railway Association."

In view of this fact, it will perhaps be interesting to note that while the delegates were present in their individual capacity, they were registered as members of the following railway organizations

American Steamship Association.
American Railway Association.
Association American Railway Accounting Officers.
Chicago Claim Conference.
Committee on Uniform Classification.
Freight Claim Association.
General Managers' Association of the Southeast.
American Association of Freight Agents.
New York Claim Conference.
Southeastern Accounting Conference.
Southeastern Claim Conference.
Southeastern Demurrage Bureau.
Southeastern Freight Association.
Southern Classification Committee.
Southern Weighing and Inspection Bureau.
Southwestern Tariff Committee.
Superintendents' Association of Atlanta.
Superintendent's Association of Chattanooga.
Texas Claim Conference.
Virginia Claim Conference.
Western Classification Committee.

Since that time, the propaganda has spread so widely and so many different other associations and individual roads have done such good work that the General Managers' Association of the southeast, without having abated its activity, can only be considered as *one* of the *many* factors working towards the desired solution, but at the last meeting of the General Managers' Association of the Southeast, held November 12, 1914, their executive committee reviewed the general developments broadly in a report which sums up the situation so clearly that its full reproduction is quite timely.

NATIONAL ORGANIZATION TO TREAT LOSS AND DAMAGE.

"Attention is directed to resolution adopted by the second meeting extraordinary, September 9, 1910. (See above.)

"The American Railway Association responded to this by creating a sub-committee, known as the 'Sub-Committee on Packing, Marking and Handling of Freight,' formed by calling on the General Managers' Associations of New York, Chicago, and the Southeast, to each name three members thereof, and, while they have held a number of meetings and have accumulated information of considerable value, they have fallen somewhat short of the effectiveness and scope contemplated by the meeting extraordinary.

"Therefore, the plain necessities of the situation give rise to the suggestion, in some quarters, that a new association be formed for the 'prevention of loss and damage,' on which proposition this

Association adopted, March 25, 1914, the following resolutions:

"'WHEREAS, The drain upon the operating revenues of the carriers through the loss and damage account has grown so enormously, that it has attracted most serious consideration to the managements, and in some notable instances individual roads have found it practicable to devise highly effective improvements in the handling of their freight traffic; but,

"'WHEREAS, It is a fact that the majority of the freight business of America is inter-line, so that the adoption of the most approved methods by individual roads fails to affect the larger part of their business on account of said inter-line portion originating with other carriers; and,

"'*Therefore,* An effective control of the loss and damage evil is so palpably an inter-line rather than a local question, that to cope with it successfully it must be necessarily handled in a national way, preferably by experts most familiar with the necessities of the situation; and

"'WHEREAS, There exists already an organization known as the Freight Claim Association, to which practically all carriers subscribe, but whose scope has heretofore been restricted to the prompt settlement of freight claims with claimants and between carriers; Be it

"'*Resolved,* That the Freight Claim Association be requested to enlarge its scope of activity to include the study of claim causes, the development of suggestions for standard practices for the proper handling of inter-line freight, and to consider the application of remedies to prevent losses, damages, delays, etc., that to such end they be further requested to organize a committee or committees for the special purpose of studying the prevention of claims, and to suggest standard practices for the receiving, packing, marking, loading, billing, transferring and delivery of inter-line freight;

"'And, to this object, the managerial officers pledge their cordial sympathy, and that, recognizing the most excellent work of the American Railway Association, through its Sub-Committee on Packing, Marking and Handling of Freight, that said committee be asked to work in close co-operation with the Freight Claim Association and lend its efforts towards the devisement and adoption of standard methods and practices in the handling of inter-line freight; Be it further

"'*Resolved,* That the chairman lay this resolution before the other General Managers' Associations and other organizations of operating and managerial officials, with request for their concurrence herein.'

"The Freight Claim Association has taken action in accordance with these resolutions, and at the same time the American Railway Association has acted by increasing its Committee on Packing, Marking and Handling of Freight to sixteen, which will include the five members of the new 'Committee on Cause and Prevention' of the Freight Claim Association, one member each from the five weighing and inspection bureaus, one member from the American Railway Perishable Freight Association and five of the original members nominated by the General Managers' Associations.

"This committee is expected to formulate standard practices for the proper receiving, billing, loading, marking, transportation, and delivery of freight, said standards to represent the result of a study of all of these features, with a view of determining the best methods of handling each step in the transportation of freight from the door of the receiving depot to the door of the delivery depot. After same have been finally determined, through the appropriate and proper channels, it is then contemplaed that the Freight Claim Association will so base its rules as to put a premium on the proper maintenance of these standards, by making the line guilty of improper handling, bear the burden of any loss or damage that may result from such negligence.

"The ineffectiveness of the work of the committee heretofore seems to be due to the fact that the regular duties of the members so fully occupied their attention that it has been impossible to spare much time for the profound studies involved, and meetings of one or two days a month are manifestly inadequate. It is very much to be hoped that a small working committee of a few men can be relieved of their regular work and give all their time to the studies undertaken by the committee, or at least that the American Railway Association will employ one or two expert and experienced men to conduct the work under the direction of the committee.

FRAMING CLAIM RULES SO AS TO PREVENT LOSS AND DAMAGE.

"From the time your Association first became interested in this subject, your Committee on Loss and Damage has clearly seen the undesirable influence of an average prorate principle in the rules of the Freight Claim Association and a reversal of this policy in the adjustment of claims between carriers has been considered of fundamental importance.

"A brief recital of the situation will probably be illuminating.

"The Freight Claim Association came into existence over twenty years ago, through the need of an organized and uniform system of adjusting losses and damages between carriers, after settlements had been made with claimants. At that early date the operation of each railroad was so individualistic that it would probably have been impracticable to have secured consideration of the relative merits of operating practices.

"The great desideratum was the facilitation of the disposition of inter-line claim balances between carriers, and, to accomplish this successfully, it was necessary to resort to the solution of prorating claims upon a broad average basis of 'give and take,' the theory being that the injustice visited upon one line in paying a share of a claim caused by a fault of another line, would equalize itself between carriers, which has proven true, but the evil lies in the palliation of bad practices, because of the fact that the penalty for a concrete case of negligence or inadequate methods is so shared between several lines that the beneficial influence of a stinging incentive for future prevention is largely lost.

"The agitation of the loss and damage question since 1908 has emphasized the fact that in combating this evil 'an ounce of prevention is worth a pound of cure,' and the sentiment has crystalized among the Freight Claim Agents that the relative merits of operating practices should be recognized in the claim rules; so that at the annual meeting of the Freight Claim Association in Galveston, May 13-15, 1914, the rules of said Association were amended so as to provide for the study of claim causes and application of proper remedies therefor. A standing committee on 'Cause and Prevention' was also created to work closely with the American Railway Association to the end that as fast as proper standards of practice can be established through the appropriate channels, the Freight Claim Association will embody such principles in their Code of Rules, so that the specific responsibility for the creation of a claim will be made to rest where it belongs, thus bringing into full play the normal incentive for the application of remedies, which have heretofore been deadened by the average prorate principle.

THE SOUTHERN WEIGHING AND INSPECTION BUREAU.

"For ready reference, recommendation adopted by the first meeting extraordinary, April 9, 1908, is quoted:

"'The range of articles tendered for shipment is so wide, that we believe to secure uniform enforcement of the rules, it is necessary to have receiving stations supervised in a general way, and we think much good could be accomplished by such a supervisory authority, which could take up with manufacturers, or shippers, in behalf of all the lines and insist on better packing:

"'Our recommendation would be that this duty be conferred upon the Southern Weighing and Inspection Bureau.'

"All members are familiar with the earnest efforts which have been made since that time to bring about the adoption of this suggestion, and it is only necessary now to report that on June 1, 1914, the Southern Weighing and Inspection Bureau will inaugurate the desired supervision of marking and packing, commencing first by a campaign of moral suasion and general education of the shipping public, and of railroad agents and receiving clerks, as to proper marking and packing of freight, somewhat along the trail blazed by the marking and packing inspectors employed for a time by this Association to conduct similar campaigns in various cities.

STANDARD SPECIFICATIONS FOR CONTAINERS.

"In the elimination of freight loss and damage, it is readily to be seen that the relation of the container to the problem is similar to the keystone in an arch.

"Not only must it be universally conceded that containers should be of sufficient adequacy and strength to reasonably protect contents under the normal conditions of modern transportation, but deficient containers furnish such a striking and reasonable excuse and explanation for breakage that the difficulties confronting the railroads in disciplining negligence and overcoming carelessness or roughness in handling by their own employes, are greatly multiplied.

"The existing classification rules on containers are by no means sufficently explicit, but under the supervision of marking and packing by the weighing and inspection bureaus, it is believed there will be a constant, powerful and intelligent pressure for the adoption of detailed specifications for containers for every commodity.

"Your Association has long recognized the necessity for standardization of containers, and while pressing for supervision by the inspection bureaus, as one of the roads to that end, it has also exerted itself in other directions as well.

"For several years the Association has been in touch with the National Association of Wooden Box Manufacturers and has urged them to formulate standards for wooden boxes. At times these manufacturers have manifested considerable enthusiasm on the subject, but which, unfortunately, seems to be of an intermittent intensity. They have clung rather tenaciously to the thought that the railroads should practically subsidize the standardization by a preferential classification, but they have been given no encouragement in this direction. There has been held before their eyes the fact that the greatest inroads made by substitute containers has been due to the flimsiness and deficiency of some wooden containers and that the salvation of the manufacturers of adequate wooden containers lies in the devisement of standards, which will automatically exclude the inferior wooden containers, and at the same time serve as a basis of strength and efficiency by which to measure substitute containers.

"The decision of the Interstate Commerce Commission in the Pridham (fibre box) case has served to emphasize these arguments and the latest information is that the wooden box manufacturers are working slowly in the desired direction by a series of scientific tests of the resistance of different kinds of wood.

AMERICAN SOCIETY FOR TESTING MATERIALS.

"It is gratifying to report the creation by the American Society for Testing Materials, of a special committee known as "Committee D-10, on Standard Tests and Specifications for Shipping Containers," to study and work for the standardization of shipping containers as an important link in the conservation of national resources. The personnel of the committee, including representative wooden box, fibre box, barrel and sack manufacturers, particularly with Col. B. W. Dunn, chief inspector, Bureau of Explosives, as chairman, is of an extremely high type, and valuable results can confidently be expected from this source.

STANDARD INSTRUCTIONS TO AGENCY EMPLOYES.

"After a careful study of the rules and regulations of member lines, lines operating in other sections, and answers of a large number of agents, freight claim agents, and other experienced men to the Association's 'List of Questions for Examination of Agency Employes,' a book of 'Standard Instructions to Agency Employes for the Handling of Freight' has been compiled, and adopted by the Assocaition as recommended practice.

"While the book of instructions is not claimed to be perfect it marks a long step forward in the direction of uniformity and is a basis for complete, definite, and comprehensive instructions to employes for the proper handling of freight. It is to be hoped that the American Railway Association will find it desirable to adopt as recommended practice a standard code of such rules, and it is felt that our compilation constitutes an excellent foundation therefor."

At said meeting of November 12, 1914, a further and very important resolution was adopted and transmitted to the American Railway Association, reading as follows:

"WHEREAS, Freight loss and damage exceeds thirty million dollars per annum, and the American Railway Association has recently indicated that there will be a further increase for the current year; and

"WHEREAS, The work already under way, and which is yet to be taken up by the American Railway Association Committee on Packing, Marking and Handling of Freight, for the reduction and prevention of this freight loss and damage expense, is of such importance that it should be expedited as much as possible; Therefore, be it

"*Resolved*, It is the sense of this meeting that there should be assigned exclusively to the service of the committee, one or more experts in the handling of freight; And be it further

"*Resolved*, That the chairman be instructed to convey this expression to the American Railway Association, with the hope that the latter can see its way clear to supplement its organization by the appointment of one or more such experts to devote their entire time to a study of these matters, and the development of information on which the Committee on Packing, Marking and Handling of Freight may base prompt and effective action; And be it further

"*Resolved*, That these resolutions be submitted to the General Managers' Associations of Chicago and New York with request for their consideration and concurrence herein."

It is quite probable that the existing war depression, which has forced upon the American Railway Association a policy of retrenchment, will defer favorable action upon the above resolution for a time, but the importance of same has perhaps been emphasized by the recent very interesting address by Chairman Harlan, of the Interstate Commerce Commission, to the National Association of Railway Commissioners, in which he pointed out that the settlement of loss and damage claims has grown from $7,055,622 in 1900, to $30,885,454 in 1913, an increase of 337 per cent, during which period freight earnings have increased only 109 per cent.

The Interstate Commerce Commission in its Twenty-eighth Annual Report, sent to Congress last month, repeats these figures and also points out the interesting fact that in the three years ending with 1910, the amount paid out for loss and damage decreased year by year, but between 1910 and 1913 there has been an increase of 41 per cent, as against an increase in freight revenue of only 14.2 per cent. Forecasts for 1914 indicate that loss and damage will leap up as high as $34,000,000, or an increase of about 12 per cent over 1913, despite a decrease in business.

The loss and damage question has changed from a *local* to an *interline* problem, and while energetic individual treatment halted the increase for a time, successful permanent results can be achieved only by united *interline* action, in one form or another, but those best qualified to judge hold that the logical channel is through the American Railway Association and by the permanent assignment of experts to that exclusive duty.

British Methods of Signaling on Moving Trains

FROM OUR LONDON CORRESPONDENT.

London, December 22, 1914.

AT a special meeting of the British Institution of Mechanical Engineers just held, a series of papers were read dealing with the question of signaling on moving trains and dealing with this especially from the point of view of British signaling engineers. W. C. Acfield, signal superintendent of the Midland Railway, spoke on the problem of audible signaling on trains in motion and said that to convey a signal or indication from a given position on a railway to an engine or vehicle traveling at a high rate of speed is one of the problems that has occupied the attention of inventors and others from the earliest days of steam traction up to the present time, but for many years little or no progress was made towards a solution, as it was proved beyond doubt that a mechanical arrangement could not stand the shock to which two portions of mechanism are subjected at the moment of impact when trains exceed a speed of thirty miles per hour. One of the greatest difficulties to be overcome in mechanical appliances is so to design the apparatus that it will fail on the side of safety, and at the same time render the giving of a false clear signal or indication impossible. Another very important point is the ease of application and attachment to the engines or rolling stock of railways over which, particularly in the United Kingdom, the trains of one company require to pass on their way to other companies' lines.

The essential requirements of apparatus for signaling on railway trains in motion may be briefly laid down as follows: (a) Warning to engine-drivers of train approaching signals either at danger or clear; (b) distinctive sounds for danger and clear signals; (c) absence of apparatus operated by the force of impact; (d) gradual application of train brake in the event of a danger signal being received, and means of liberating the brake on the part of the engine-driver; (e) apparatus, in the event of the failure of any part, should give a danger signal; (f) elimination of movable ramps operated by signalmen by mechanical means, and (g) impossibility of signals being in contrary position to the position of the levers in the signal box working the same.

Such an apparatus is known now as "cab-signaling." In the early stages of the working out of such devices it was deemed imperative that, in addition to audible signals being given, an indication should also be displayed on the foot-plate; but to-day it is almost unanimously considered undesirable to give the engineman anything liable to distract his attention from keeping a proper lookout. Sirens appear to be the most desirable form of warning as a danger signal, operated either by steam or by air-brake, and a bell for the clear signals.

The Midland Railway has not adopted any cab-signaling device up to the present time, but has experimented with the combined automatic train control and audible signal system, as used on the Great Western Railway, on a branch line, for which two engines only have been fitted with the apparatus; and so far the experiments have proved satisfactory. The Midland Railway has this year made some experiments with the railophone, an invention of H. von Kramer, for giving an automatic warning in the engine cab. This apparatus is primarily intended for use in connection with distant signals, and, unlike the automatic train control mentioned, has no physical connection or contact with either the rolling stock or the permanent way, being operated entirely on the wireless inductive principle. So far, however, it has not been considered desirable to publish any results of the experiments.

Vincent L. Raven, the chief mechanical engineer of the North Eastern Railway, described the electrical system designed by himself which has been in actual use on the Richmond branch of the North Eastern Railway for over two years, and also on that part of the North Eastern Railway Company's main line which is situated between Durham and Bensham. During the whole of that time the arrangement has given satisfaction; and on no occasion has the danger signal ever been omitted to be given. The apparatus is fitted to thirty-six locomotives.

The main objects of the system are to advise the driver of his approach to a signaling zone where signals are to be looked for; to give him the necessary information with regard to the positions of the signals controlling his further advance, and to prevent him from mistaking other signals than his own; and to retain control of him by the cab-signals until he has passed the last signal-controlling entrance into the section ahead.

The system comprises visual and audible indicators on the engine. The former consist of a small semaphore, with which is combined one or two small pointers capable of being deflected to indicate numbers painted on the dial. The semaphore arm, together with the operation of the small pointer indicates "condition" signals, and the small pointer, by the number indicated on the dial, also gives the "Route" indication. The audible indicator is an electric bell, which is separate from the visual apparatus. The engine circuits are brought into operation by the movement given to a metallic shoe linked to a small switch when passing over metallic bars placed in suitable positions on the track, and currents are collected from the bars by insulated steel wire-brushes brushing lghtly but firmly over the bars as the engine passes over them. The shoe and the brushes are carried on one bracket, which is insulated from the engine frame. The metallic bars on the line are mounted on insulators.

The system is capable of being adapted to show signals for distant, home, and advance signals where the present outdoor system is to be retained, or it may be adapted to work with the present distant signal only. It is capable of adaptation to single-line working, and lends itself easily to the provision of records of the "condition" signals obtained at each signaling point, should such records be considered desirable. It is also capable of acting as a means of indicating points at which temporary speed restrictions are imposed. The design of the apparatus is such as to give the fullest possible indication of failure of the equipment. The normal operating position of the semaphore arm is maintained by a continuous current, any interruption of which places the semaphore arm at danger, and inability to restore the arm to the normal running position is proof of such a failure.

W. A. Stanier, of the Great Western Railway, described the combined automatic train control and audible signal system in use on that railway. He said that for some years it had been felt on the Great Western Railway that the system of calling up fogmen and the use of detonators for warning trains was unwieldy and led to many delays that might be avoided. But at the same time it was felt that to supersede it any device proposed must provide the following features: (1) An audible warning on the foot-plate of the engine to indicate to the engine man the position of the signal he is approaching; (2) the warning must be separate and distinctive for stop or danger position and the proceed or all right position of the signal; (3) the stop or danger warning must be independent of any electrical connections either on the line or the engine, and must be given even if the electric connections fail; (4) each signal must be acknowledged by the engineman in some tangible way; (5) it must be possible to apply it to any engine and to any line whether single or double; (6) there should be no moving parts on the line; and (7) latterly it has been decided that in the event of the signal being at danger the brake must automatically be supplied.

About the year 1905 some of the Great Western engineers devised an audible signal for the locomotive cab which, after a certain amount of experimenting, was considered to be simple enough and certain enough to warrant a more extended trial. Certain branch lines were equipped with the apparatus, and as a result the system was improved and its use considerably extended. The device met the foregoing requirements as follows: (1) A bell and a whistle or siren on the foot-plate of the engine; (2) a whistle or siren sounded for danger or stop and a bell for proceed or all right; (3) the stop or danger signal is not dependent on any electric connection to sound, and the failure of any electric connections does not prevent it from sounding; (4) the engineman acknowledges either signal by a definite movement to reset the device; (5) the apparatus is in the center of the track, so that it makes no difference which way the engine is running; (6) the ramp in the center of the track is a fixture, and (7) when the stop or danger signal is given on passing over the ramp a valve automatically opens in the train-pipe which admits air through a siren and applies brakes, thus pulling up the train. The device has proved so satisfactory in service that about 180 miles and 90 engines up to the present have been equipped, and its use is rapidly being extended.

W. Willox described the "train-stops" which are employed on the Metropolitan Railway (which is part of the London Underground Railways) of which he is engineer.

He explained that the system of signaling in use on the electrified portion of the Metropolitan Railway is all electric automatic, which requires no visual indication in the driver's cab. There is, however, a control on the driver by means of what are called "train-stops," which are placed at every stop signal. The train-stop is a device which is controlled by the track circuit in exactly the same manner as the signals, and consists of a short vertical arm which is held vertically in its normal position and is lowered to the clear position by means of the track circuit acting through a motor at the same time as the signal goes to clear. There is a trigger fitted on the leading motor coach or electric locomotive which would engage with the train stop in its normal position and so be deflected backwards. When this occurs it applies the emergency brake on the train and simultaneously opens the power circuit, thus braking the train and cutting off the current. In this way, if a driver passes the signal at danger, his train is automatically brought to a stand and cannot be started again until the trigger is replaced in the vertical position. A train weighing 200 tons running at a speed of 25 miles per hour on the level is brought to a stand in less than its own length.

These train-stops although they come to a clear position at the same time as the signals, are controlled by the track circuit independently of the signals, so that if by any accident the signal should remain at the clear position instead of going to danger, the train-stop would still go to the vertical position, and thus come into action if the train went past the signal.

Operation

A Fine Safety Record for the Cumberland Valley.

MR. M. C. KENNEDY, President of the Cumberland Valley Railroad, a part of the Pennsylvania System, has addressed the following letter to the Employes of the Railroad, congratulating them on the almost total absence of accidents of all kinds during the year 1914.

"To the Employes of The Cumberland Valley Railroad Company:

"During the year just closed the Cumberland Valley Railroad transported approximately eight and a quarter million tons of freight and two million passengers without the loss of life of a passenger or one of its 2100 employes and without injuring a passenger.

"While there have been minor accidents to employes, not so much as a finger or a toe has been amputated, and with the exception of one fractured ankle, not a leg nor an arm broken.

"Without taking into consideration the few slight accidents on industrial sidings and in yards there has not been a wreck in the general acception of that term. The wreck crew has only been called seven times during the year and the total cost of wrecking has been insignificant.

"This splendid record, of which I feel justly proud, and which I do not believe has been equalled by any railroad of its size and same density of traffic, is not attributable to any one man but to the hearty co-operation of every officer and employe in their untiring efforts to make the Cumberland Valley the best and safest railroad in the United States.

"I congratulate you and ask a continuance of that loyal support without which such a record could not have been made, and I extend to you one and all, my best wishes for a happy and prosperous New Year.

"M. C. KENNEDY,
"President."

A Perfect Record for the Pennsylvania.

NOT a single passenger out of the 188,411,876 carried in 1914 on all of the 26,198 miles of track of the entire Pennsylvania Railroad System was killed in a train accident.

Reports compiled for all the lines of the System, with figures for the last month estimated, show that Pennsylvania passenger trains traveled 67,389,381 miles in 1914. More than 3,000 trains were operated every day—more than a million trains in the year.

The records for the different lines of the Pennsylvania System showing trackage, and number of passengers carried without a train accident fatality in 1914 are as follows:

Pennsylvania Railroad System.	Miles of Track.	Passengers Carried.
Lines East of Pittsburgh..	13,657.25	111,249,801
Long Island Railroad	824.58	42,910,945
Cumberland Valley Railroad	327.62	1,910,000
Baltimore, Chesapeake & Atlantic Railway	103.02	404,025
Maryland, Delaware & Virginia Railway	87.74	222,630
Pennsylvania Lines West of Pittsburgh	8,996.72	26,072,960
Vandalia Railroad	1,357.03	2,938,959
Grand Rapids & Indiana Railway	844.57	2,702,556
	26,198.53	188,411,876

The Pennsylvania Railroad Lines East of Pittsburgh in the past two years carried 311,675,794 passengers and not one of them was killed in an accident to a train. In four of the past seven years, 1908, 1910, 1913 and 1914, more than 558,000,000 passengers—five times the population of this country—were carried by the Pennsylvania Lines East of Pittsburgh without a single one being killed in a train accident.

The Pennsylvania Management regards every accident of any kind on its property as one too many. Every effort is being continually directed to the end that the number of accidents of all kinds may be steadily reduced, and if possible, prevented.

Remarkable Record of the Oriental Limited.

THE Oriental Limited, Train No. 1, westbound, has just completed a record for "on time arrival" at Seattle that, according to the best information obtainable, has never been approached by any overland train of any railroad, and in all probability will stand as the champion record for some time to come.

While it has not been unusual, for several years past, for No. 1 to reach Seattle "on the dot" for a month or so at a stretch, the train's recent performance is noteworthy.

The Oriental Limited was on time from April 14, 1914 to July 19, inclusive, 97 days; late four times between July 20 and 27 (delays being due to blasting incidental to tunnel construction in the Rockies); on time from July 28 to December 15, inclusive, an unbroken stretch of 141 days. To put it another way, "on time" 238 days (practically eight months) out of 242.

This is truly a wonderful record. The "on time" arrival of a fast, heavy passenger train, like the Oriental Limited, after a 72-hour run over 2,217 miles of steel rails, including the climb of the Rocky Mountains and Cascade Range, is a human and mechanical triumpn. To make "On time" arrival a regular occurrence, supervision, operation, roadbed, power and equipment must reach a high standard of efficiency.

Safeguarding the Health of the Traveling Public.

SOME years ago the Pennsylvania Railroad required every employe engaged in the preparation of serving of food in the dining cars and restaurants to undergo a physical examination every ninety days. Anyone found to have even a tendency toward a communicable disease was debarred from the service. Later, the order was given to examine these employes every thirty days. Now the order has gone forth that they must be examined "at least" once every thirty days.

Just as important as the rule for examining employes is the new regulation governing the inspection of dining rooms, dining cars and kitchens. The Pennsylvania Railroad's medical examiners, who are also officers of the State Board of Health of Pennsylvania, act as inspectors. Kitchens, silverware, linens, cooking vessels and methods of preparing and serving food will be under their scrutiny. Every car and restaurant must be inspected "at least" once every month.

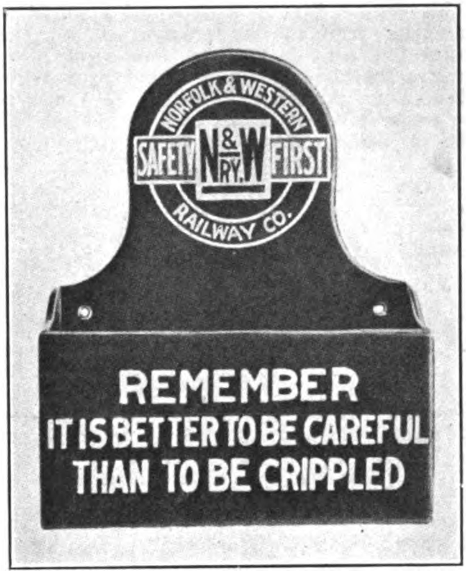
Another innovation the Dining Car and Restaurant Department has made is in the handling of food at commissionaries. Meats and poultry were formerly carried from commissary refrigerators to dining cars in baskets, without any protection against dust. The new system requires that every piece of meat or poultry must be enclosed in an air-tight paper bag before it is taken from the refrigerator.

Safety First Card Boxes on Norfolk & Western.

IN order to keep the safety first idea prominently before their employes, the Norfolk and Western Railway has had safety first card boxes, similar to the one shown in the accompanying illustration, put up at all points on the line where employes congregate, and in them have been placed printed cars, addressed to Chairmen of Local Safety Committees, to be used for calling attention to defective or dangerous conditions or practices, the correction of which may save life or limb.

The Company not only receives, but invites from both officers and employes, suggestions looking to improvement in safety and efficiency, and these cards are placed with the specific purpose of affording to those who take an interest in the prevention of accident, a convenient and accurate medium of communication.

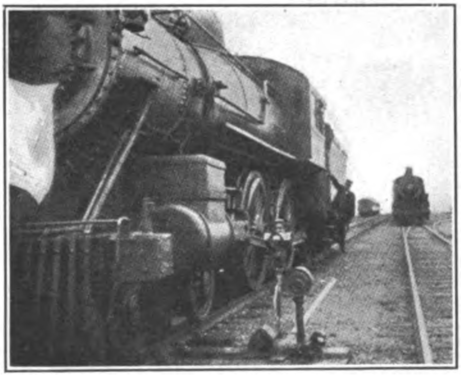
It is earnestly urged upon employes and officers generally to make a mental note that whenever these boxes are seen, a moment's serious thought will be given in trying to call to mind such conditions or practices, and, if something is remembered, which if corrected will make the railroad a safer one upon which to work, a note of it should at once be made on a card and the card dropped in the service mail. It is suggested that such an act may prevent an injury or even a death.



Safety First Card Box of the Norfolk and Western Railway which has been Placed at all Points on the Line where Employes Congregate.

Stepping in Front of Moving Trains.

MORE railway employes are killed each year through their own carelessness than in any other manner. One of the careless habits which claims the greatest toll is that of stepping on moving trains or crossing tracks, without taking the ordinary precaution to look each way to see if a train is coming. The accompanying illustration shows a passenger brakeman in the act of getting off the gangway steps



Passenger Brakeman Shown About to Step in Front of Rapidly Moving Southbound Passenger Train.

of his engine directly in front of a southbound passenger train, which resulted in his being struck and killed. On the same road, a little later in the same month, a brakeman was killed when, after throwing a switch on, ran across the track in front of his own engine on to an adjacent track and was struck by engine moving in the same direction as his own train. Each of these accidents would have been avoided if the men had made any effort to stop, look or listen to see if another train or engine was coming.

North Western's Safety Record for 1914.

DURING the fiscal year ending June 30, 1914, the Chicago and North Western Railway carried over 33,000,000 passengers without a single fatality. This achievement, a striking illustration of the success of the "safety first" movement, was accompanied by an increase in the number of travelers carried as compared with the year previous, of nearly a million or, to be exact, 2.92 per cent. The total mileage traveled by this road's passenger trains during the year was 21,537,781 miles.

A Practical Reminder.

HOW much does it cost? That is the all important question in railroad operation to-day. The Lehigh Valley Railroad has found a novel way of impressing the all important thought of "economy" on the heads of departments whose duty it is to recommend the expenditure of money. Blueprints of "COST" in big letters are framed and hung in the offices where they will do the most good. The illustration shows one in the office of a shop superintendent—the most conspicuous object in the room.

The Lehigh Valley Railroad encourages the planning of improvements and betterments in its service, and the signs merely furnish the incentive for that "sober second thought" by which the true value of any proposed expenditure may be judged.

Train Discipline Based on Merit System.

DISCIPLINE in train service of the Cincinnati, Hamilton and Dayton Railway will be administered under the merit system, beginning January 1, 1915, as announced by J. M. Davis, general manager, in a circular stating that the method of suspending employes for infractions of rules will be discontinued and instead a record will be kept showing merits and demerits for work performed.

The objection of the railroad in making this radical departure in employment is to better the condition of the men by doing away with suspensions which cut off the earnings of and work hardships on the employes and their families. By the new system demerits will be registered on personal records until a number sufficient to warrant dismissal are received; but counterbalancing these marks the men will be given credits for meritorious service, such honor marks weighing heavily in reviewing the records. Such offenses as disloyalty, insubordination and intoxication will carry penalties of summary dismissal, as under the old regulations was the case.

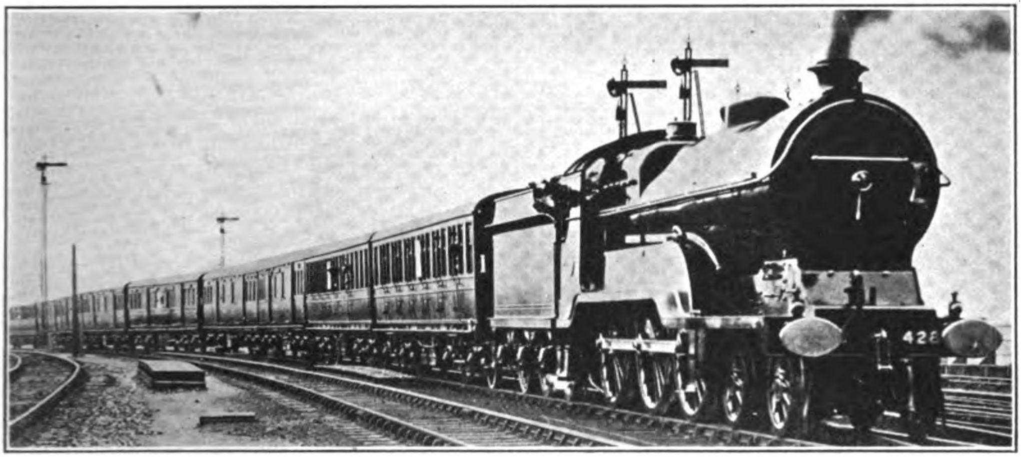
The personal record of each employe affected by the new order will be kept in the general offices at Cincinnati, as well as at each division headquarters; and each entry in favor of or against the record will be forwarded to the man in order that he may be informed concerning his standing. Employes will be furnished copies of their record cards at any time by addressing a request to their superior.

A "COST" SIGN WHICH HAS RECENTLY BEEN HUNG IN THE VARIOUS OFFICES OF THE LEHIGH VALLEY RAILROAD. IT IS INTENDED TO ACT AS A PRACTICAL REMINDER TO THE EMPLOYES OF THE ROAD.

Mechanical

The Employment of Ambulance Trains in the War Zone.

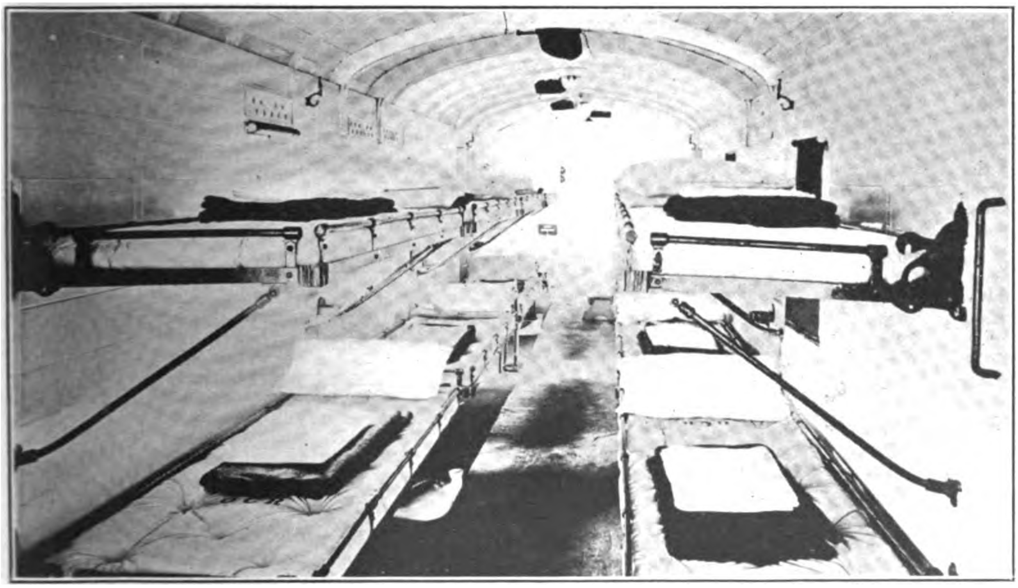
ALL four of the great nations actively engaged in the conflagration raging in Europe, are making liberal employment of ambulance trains, to care for their sick and wounded. The accompanying illustration shows the interior of a ward car which is a part of two military ambulance trains recently supplied by the Midland Railway of England for the war office. These trains consist of ten coaches each, which have been taken from the regular traffic service, and converted into ambulance cars in the shops of the road at Derby. The accommodations of each train consists of five hospital wards, sleeping accommodations for medical officers, nurses and staff and special compartments.



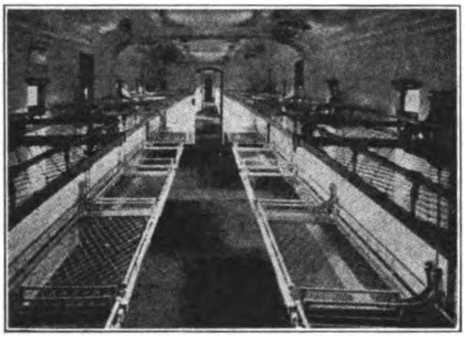
Ambulance Train of the Great Central Railway of England.

The illustration on following page shows the beds in place in one of the ward cars, but not made up. They can be folded up against the walls when not in use and are arranged in upper and lower berths, there being twenty in each car. In order to maintain cleanliness, the interior of the coaches are painted with white enamel and the floors are covered with linoleum.

The Great Central Railway Company has also recently equipped a military ambulance train for the War Office. This hospital on wheels is a striking example of the adaptation of English railroad ingenuity and patriotism to the exig-



Interior of Ward Car Showing Beds Made up Ready for Occupancy. Note the White Enamel Interior and Black Cloth Screening Hoods for Lights.



Interior of Ward Car Showing Beds Unmade. There are Twenty in Each Car and may be Folded up Against Walls when not in Use.

encies of modern warfare. The nine vehicles comprising the train include several ward cars for the accommodation of from fifteen to twenty wounded in each, a well stocked pharmacy, elaborate kitchen quarters for medical staff, nurses, etc., in fact, every facility of a modern emergency hospital. Everything possible has been done, as regards lighting, ventilating and heating to make the transporting of wounded soldiers as comfortable and sanitary as possible. Lighting is by incandescent gas, with fixtures arranged with black cloth covers so that the light may be effectively screened whenever necessary.

The cars are all steam heated from the locomotive and are kept always at the temperature directed by the medical staff.

Extreme sanitary conditions prevail throughout the train; the interiors of the ward cars are painted with white enamel, so that they may be more easily washed. Each vehicle has a large red cross on its side painted on a white background to indicate the errand of mercy of the train.

Altogether the train gives a fine demonstration of the whole-hearted way in which England cares for those wounded in defense of their country, and effectively alleviates the suffering inevitably attendant upon the ordeal of transporting the injured to the various hospitals of the Kingdom.

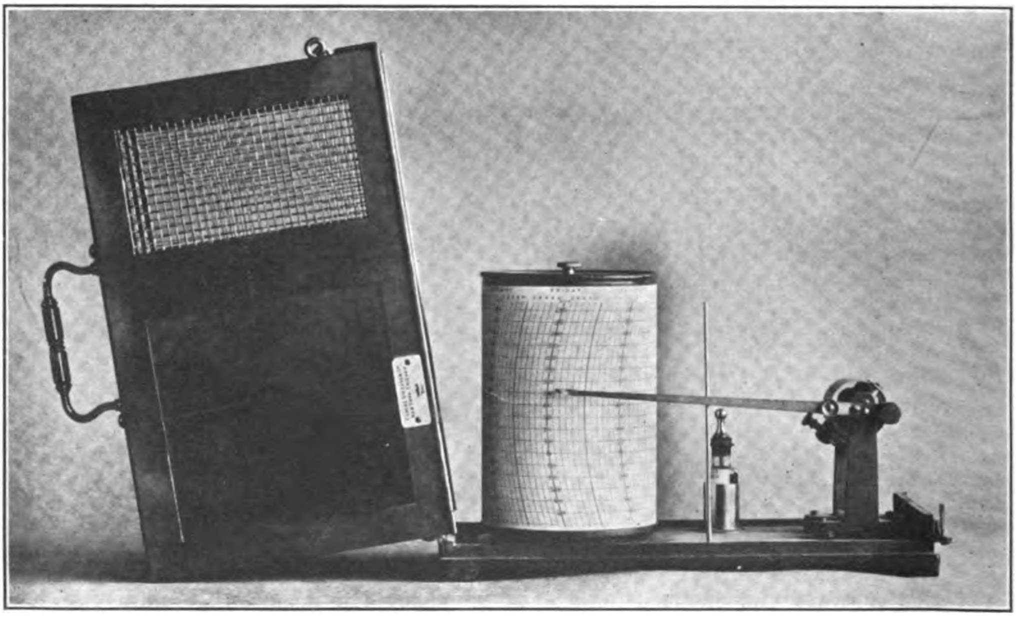
Southern Pacific Employs Thermograph to Protect Perishable Shipments.

THE maximum care exercised by the Southern Pacific Company in protecting shipments routed over its lines is aptly illustrated in its use of the thermograph as one measure of protection for its perishable fruit shipments.

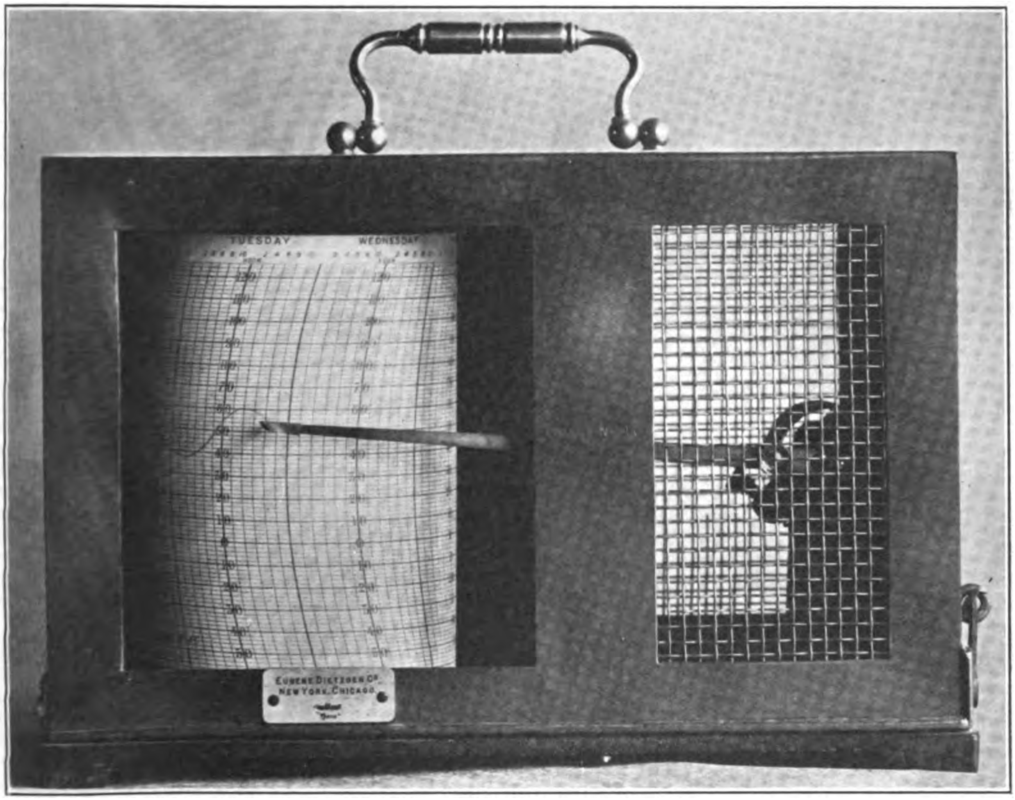
The thermograph is a temperature recording device in which the fluctuations of heat and cold are traced with a fountain pen on a revolving chart. The record is kept continuously for twenty-four hours. The duration of the temperature for as small a period as fifteen minutes and the fluctuation of even half a degree may be ascertained, so accurate is the instrument.

The benefits accruing from the use of the thermograph are obvious. By its use, the vent clerks are able to judge just when the vents of the car should be opened or closed or so adjusted as to give the best protection to the shipment. The original charts are later sent into the main office of the Company, where blue prints are taken of them, and the originals are then returned to the thermograph station. By the maintenance of these permanent records in the general office, the Company is enabled to check up on the manner in which the shipment was taken care of at various points along the line by the vent clerks.

Under the direction of W. D. Smith of Chief Engineer William Hood's office, thermographs have been installed at Roseville, Dunsmuir, Ashland, Oroville, Carlin, Sparks, Ogden, Bakersfield,



Thermograph Employed by Southern Railway, with Hood Removed.



THERMOGRAPH IN THE ACT OF RECORDING TEMPERATURE OF CAR CONTAINING PERISHABLE SHIPMENT.

Mojave, Colton, Yuma, Tucson, Nogales, Deming and Colton, and in addition the Company has the use of the government's device at Roseburg.

But the thermograph is not the only instrument used in protecting shipments against the cold or heat. At five hundred other points along the line, where the fluctuations in temperature are less likely to occur, the temperature is taken from thermometers thrice daily—at 7 A. M., 2 P. M. and 9 P. M.—and the five hundred agents, who act as observers, are required, in case the temperature requires, to watch the vents in the cars.

The use of the thermograph is only one of the ways in which the Company aims to give shippers service as nearly perfect as possible.

Tonnage Rating and Results Therefrom.

ON January 15th, Mr. J. M. Daly, general superintendent of transportation, of the Illinois Central Railroad, delivered an interesting address before the New York Railroad Club on the above subject. Mr. Daly, after referring to the wonderful mechanical improvements which have occurred in railway developments within recent years, spoke at some length upon train tonnage resistance and the factors which compose it.

He stated that as it would entail too much labor and delay to trains at initial terminal, to undertake to equate the draw-bar pull of each car mathematically, he had endeavored to perfect a device which would automatically equate and compute the draw-bar pull of each car in the train, making proper allowance for all fixed resistance, which he classified as gravity, wheel friction, wind, temperature, speed, track and gross weight of cars. To use Mr. Daly's own words:

To accomplish this, it was necessary to combine an adjusting device, with an adding or computing machine, in order that yard clerks may use it with speed and accuracy. Figure No. 1 shows the large size adjuster, the numbers on the disc represent the actual gross weight of cars and lading, from 15 to 85 tons. The small per-

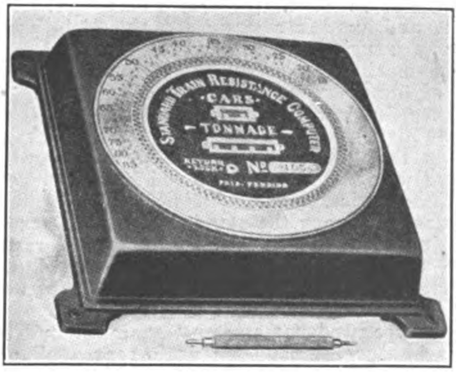


FIG. 1.

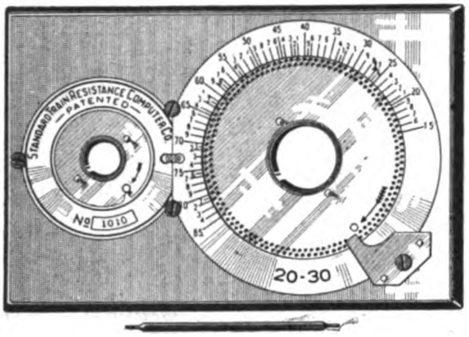


Fig. 2.

forations opposite each gross ton figure permit of inserting the stylus and moving rung to the stop member, causing numerals to move and add, not the weight of car, but the resistance or draw-bar pull in tons. Figure No. 2, the small machine, gives us the same results as the large machine, except that it does not provide for car tally, as check against errors in computing the number of cars in the train, and is made in a form that will permit of carrying it through the yard, along side of cars, on roads that show their gross tonnage by side car carding, this machine being much less expensive than the larger device.

Example.—The resistance of cars of different weights on a given division having been ascertained, the disc is so adjusted as to bring the car ton numbers opposite the perforated opening. That will add the correct resistance. Hence on a division with 30 foot grade, a disc adjusted to that condition is inserted on the machine (the discs being interchangeable on the large machine) cars of the following weights will add and register resistance in tons as shown:

A 25 gross ton car will register 28 tons,
A 50 gross ton car will register 47 tons,
A 75 gross ton car will register 67 tons.

The 150 actual tons will register only 142 tons of draw-bar pull. The gross draw-bar pull weight is carried forward until the total rating of the engine is indicated. As the resistance of each car is obtained, the stylus trips a lever that causes the car indicator to register the total number of cars, in addition to the resistance. This is used as an extra check on the accuracy. If a train is given ninety cars and the machine indicates 93, it shows three cars have been added twice, and another computation should be made, thereby insuring against errors.

The machines constructed on this basis, permit of indicating to a ton the all locatable resistance that can be obtained from the most accurate dynamometer car test possible, for the reason that the adjustment is positive, and in accord with the results obtained from such tests on that particular train division. By locatable resistance, I mean the standard accepted factors that in the aggregate make up the total resistance, and not the additional resistance due to defective equipment, soft track, wind, or weather conditions.

On a recent dynamometer test, made in Kentucky by our company, on draft gear appliance, we took 25 new coal cars, equipped with one designed gear, and 25 with another, all cars being built at the same plant and the same week. These cars were hauled 453 miles in the same train. All the cars were loaded with the same gross tons of coal, hauled over the same piece of track by the same engine and engineer under similar weather conditions. With the University of Illinois dynamometer car, the 25 cars of one design of draft gear showed 7 per cent less resistance in curves than the other.

It was clearly noticeable to the engineer and train crew, hence in rating engines and in computing tonnage no device can detect in advance, such unknown or unlocatable resistances. It is, therefore, necessary to make a given allowance to the power to take care of such factors, and this allowance should vary in proportion to the number of cars usually hauled by the engine.

On some roads an arbitrary allowance in tons is made to each car in the train. This varies from three to twenty tons per car, and is generally known as the Crawford Plan, having been worked out by Mr. Crawford, formerly with the Pennsylvania Company. This plan gives very good adjustment, if carefully worked out, but I do not think it equates the tonnage of all weights of cars as closely as the plan herewith submitted, which is based on making the proper allowance to each particular weight of cars, avoiding the allowance for average weights.

This same device is so arranged as will permit of computing the resistance under the average plan, by simply moving the disc to the point of allowance required, as stamped on the disc. For example, in running east from Altoona, an allowance of 17 tons per car is made, the disc is simply moved back to No. 5, then in using the machine, a 40 ton car must arbitrarily add 57 tons and a 20 ton car would add 37 tons and a 70 ton car would add 87 tons. If five tons is the allowance west of Altoona, the disc is simply moved back to No. 4, then each car as added in the train will carry with it five additional tons for wheel friction, it being a very simple matter and permitting quick computation in the yard office. A train of 90 cars can be adjusted in less than three minutes.

To install this method of equating train tonnage, it is necessary to first ascertain the number of feet per mile of the ruling grade, in order to use the proper adjusted disc for such grade. For example, if you have grades of 22, 25 or 28 feet to the mile, a machine numbered 20 to 30 feet should be used. This machine should be located in the office where the waybills, showing the tonnage of cars are kept, usually in the yard office.

Next it is necessary to determine the rating of the engines used. This should be done by making two or three pulling tests, and when making these tests, trains should consist of cars weighing approximately 40 gross tons each. When you have determined from these tests the exact number of tons the engine should haul, that should be the future rating. For example, if the engine uses the desired tractive power in moving 60 cars of 40 gross tons each, then its rating will be 2400 tons on the equating machine.

After determining the rating, the device may be installed and to illustrate the results obtained, we will take four trains consisting of cars of different gross weight.

First train consisting of empty and light loaded cars, averaging 30 gross tons each. When you have computed 75 cars the machine indicates 2400 tons, the full rating, although there are only 2250 actual gross tons in the train.

Second train consisting of hay, lumber and other commodities averaging 40 gross tons each. When you have computed 60 cars the machine indicates 2400 tons, the same as the actual tonnage of the cars. This is due to a 40 ton car being used as the test unit in rating the engine.

Third train consisting of grain and lumber averaging 60 gross tons per car. When the machine indicates 2400 tons you will find there are 2640 actual tons in the train.

Fourth train consisting of coal averaging 75 gross tons per car. When the machine registers 2400 tons, you will find there are 2700 actual tons in the train.

On the four trains cited, it should be understood that each and every car in the first train did not weigh exactly 30 gross tons. Some cars may have weighed 20 tons and others 50 tons each, but the average of all cars in the train was 30 gross tons, the same being true of the other three trains.

After the first rating test is made with the 40 ton cars, it is immaterial whether cars in future trains weigh 15, 20, 40, 60 or 85 tons each, and all mixed in the train. The machine is so adjusted as to cause it to equate and register the draw-bar pull of each gross weight of car in the train. Common sense and reasonable care should be exercised in putting heavy cars at the head end of train and light cars toward the rear of train, in order to favor the engine.

The four trains shown demonstrate clearly the necessity for equating train tonnage. If we were to load trains on the actual gross ton basis and rate our engines on what they can haul with 30 ton cars. In this instance we would rate them at 2250 tons and would lose 150 tons on trains with cars of 40 tons each, would lose 390 tons on trains with cars of 60 tons each and would lose 450 tons on trains with cars of 75 tons each. On the other hand, if we were to rate the enigne on test made with 75 ton cars hauling 2700 gross tons, it would not be able to haul 90 cars of 30 tons each. The result would be stalling, delaying other trains and damage to the equipment. Hence the necessity for adjusting and equating the train tonnage, in order that each engine will have approximately the same draw-bar pull of resistance, and will therefore be able to make the same uniform speed and get over the road in the allotted time.

Electrical

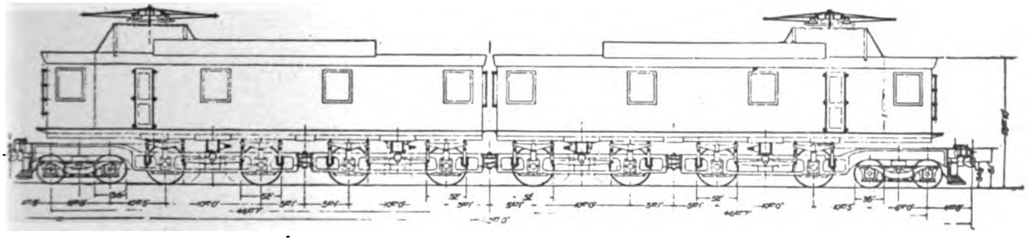
Progress in the St. Paul's Electrification.

THE Chicago, Milwaukee and St. Paul has completed plans for the electrification of the first engine division and contracts have been let to the General Electric Company for locomotives, sub-station apparatus and line material and to the Montana Power Company for the construction of the transmission and trolley lines. This initial electrification covers 113 miles of main line between Three Forks and Deer Lodge, and is the first step towards the electrification of four engine divisions extending from Harlerton, Mont., to Avery, Ida., a total distance of 440 miles with a trackage of 650 miles, including yards and sidings.

The locomotives to be manufactured by the General Electric Company are the first to be constructed for railroad service with direct current motors designed for so high a potential as 3,000 volts. They will weigh approximately 260 tons. Perhaps the most interesting part of the equipment is the control, which is arranged to effect regenerative electric braking on down grades. This feature as yet has never been accomplished with direct current motors on so large a scale. The general characteristics as proposed are tabulated below:

Total weight	260 tons
Weight on drivers	200 tons
Weight on each guiding truck	30 tons
Number of driving axles	8
Number of motors	8
Number of guiding trucks	2
Number of axles per guiding truck	2
Total length of locomotive	112 feet
Rigid wheel base	10 feet
Voltage of locomotive	3,000
Voltage per motor	1,500
H. P. rating 1 hour, each motor	430
H. P. rating continuous, each motor	375
H. P. rating 1 hour, complete locomotive	3,440
H. P. rating continuous, complete locomotive	3,000
Trailing load capacity, 2 per cent grade	1,250 tons
Trailing load capacity, 1 per cent grade	2,500 tons
Approximate speed at these loads and grades	16 m. p. h.

According to "Railway and Locomotive Engineering" for January, the initial contract calls for nine freight and three passenger locomotives having the above characteristics and similar in all respects, except that the passenger locomotives will be provided with a gear ratio permitting the operation of 800-ton trailing pas-



TYPE OF ELECTRIC LOCOMOTIVES TO BE EMPLOYED BY THE CHICAGO, MILWAUKEE AND ST. PAUL.

senger trains at approximately 60 m. p. h., and will, furthermore, be equipped with an oil-fired steam heating outfit for the trailing cars.

The drawbar pull available for starting trains will approximate 120,000 pounds at 30 per cent coefficient of adhesion.

The freight locomotives are designed to haul a 2,500-ton trailing load on all gradients up to 1 per cent at a speed of approximately 16 m. p. h., and this same train load unbroken will be carried over the 1.66 and 2 per cent ruling grades on the west and east slopes of the Rocky Mountain Divide with the help of a second similar freight locomotive acting as pusher. Track provision is being made at Donald, the summit of the grade, to enable the pusher locomotive to run around the train and be coupled to the head end to permit electric braking on the down grade. In this case the entire train will be under compression and held back to the two locomotives at this head end, the entire electric braking of the two locomotives being under the control of the motorman in the operating cab of the leading locomotive. It is considered that electric braking will prove very valuable in this mountain railroading; for, in addition to providing the greatest safety in operation, it also returns a considerable amount of energy to the substations and transmission system, which can be utilized by other trains demanding power. In this connection the electric locomotives will have electric braking capacity sufficient to hold back the entire train on down-grade, leaving the air brake equipment with which they are also equipped to be used only in emergency and when stopping the train. There is, therefore, provided a duplicate braking system on downgrades, which should be reflected in the greatest safety of operation afforded and the elimination of a considerable part of breakdowns, wheel and track wear, and overheating with consequent reduction in maintenance and improvement in track conditions.

Progress of Suburban Line Electrification on the Pennsylvania.

THE electrification of the Pennsylvania Railroad between Philadelphia and Paoli is sixty per cent completed, and if nothing unforseen happens, it is expected that electric service will be started by June, 1915.

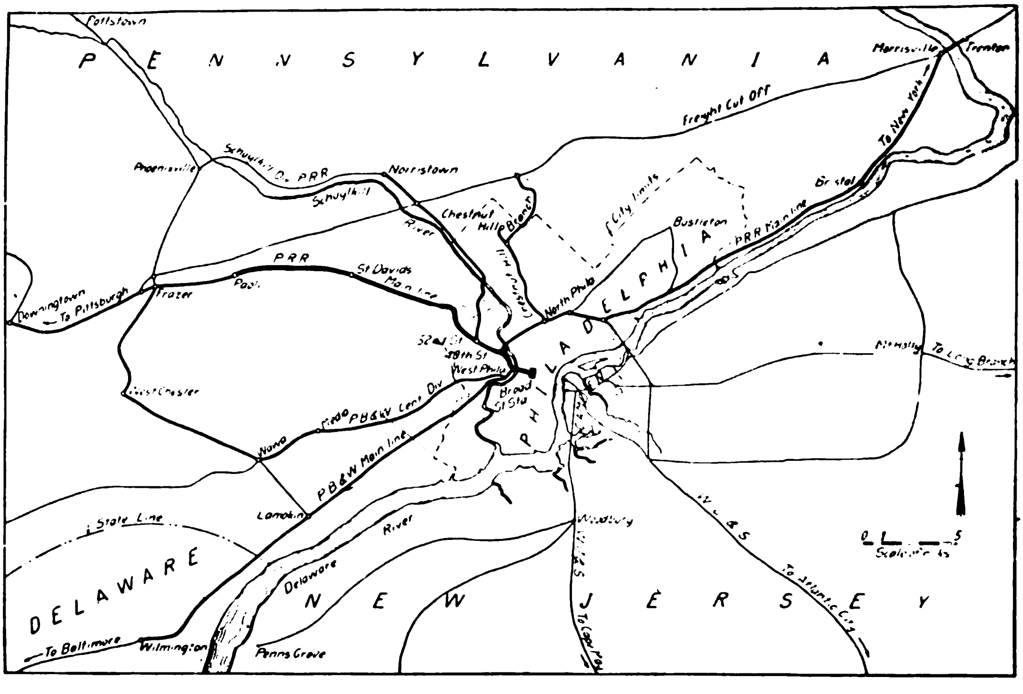
The installment of the electric equipment on the first of the ninety suburban coaches which will be used to inaugurate the electric service has just been completed. This work is being done in the railroad's shops at Altoona, Pa..

The cars, on which motors and pantagraphs—an arrangement on the top of the car for making contact with the trolley wire, are now being installed, have been used in steam suburban service for several years. They were built, however, primarily for use on electrified lines. Work on all of the ninety cars will be completed by April 1st, 1915.

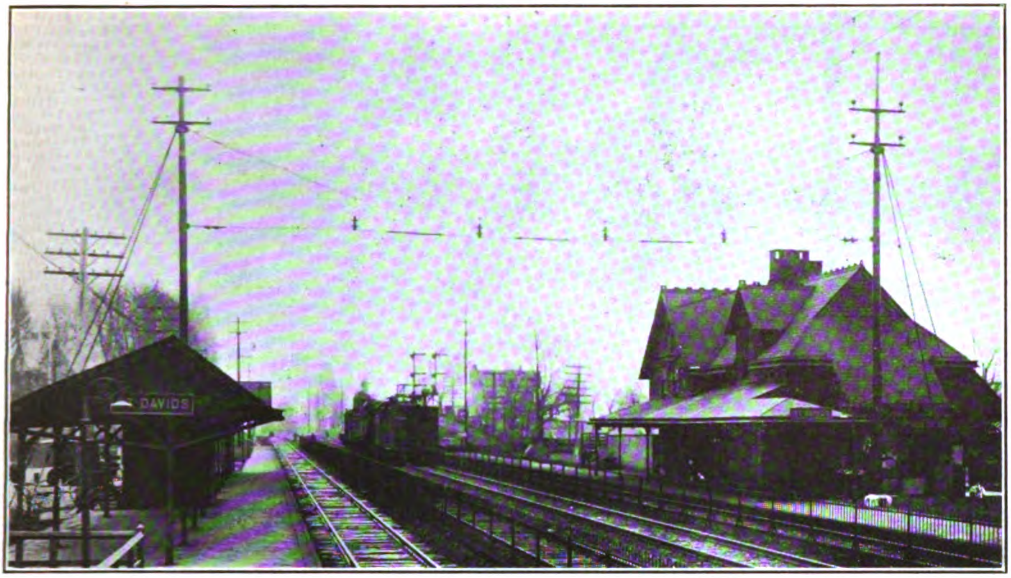
The electrification of the suburban main line between Philadelphia and Paoli will represent an expenditure of $3,500,000.

It is planned to handle the same number of trains and the same number of cars in each train under electric operation as at present by steam. All cars will have their individual motors controlled by the multiple unit system.

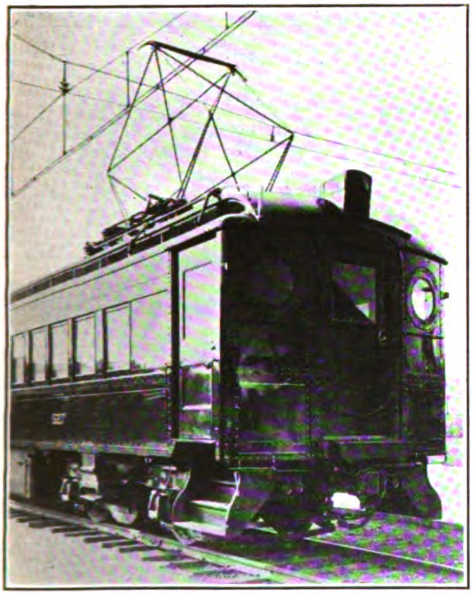
The coaches referred to above, have a seating capacity of sixty-eight and weigh 114,000 pounds which is distributed in the following manner: Bodies, 54,000 pounds; trucks, 33,000 pounds and electrical equipment 30,000 pounds. The trucks now in use can be retained for trailer trucks, but are not suitable for carrying the motors. Each car will be equipped with two 225 H. P.


Pottstown
PENNSYLVANIA
Morrisville
Trenton
Freight Cut Off
To New York
Phoenixville
Schuylkill Div. PRR
Norristown
Schuylkill River
Chestnut Hill Branch
City limits
Bristol
Bustleton
PRR Main Line
PRR
St Davids
Main Line
Paoli
Frazer
Downingtown
To Pittsburgh
North Phila
PHILADELPHIA
52nd St
30th St
West Phila
Broad St Sta
West Chester
PB&W Cent Div
Media
Wawa
PB&W Main line
Mt Holly
To Long Branch
Lamokin
State Line
River
Woodbury
W J & S
DELAWARE
Delaware
NEW JERSEY
To Atlantic City
To Cape May
To Baltimore
Wilmington
Penns Grove
0 5
Scale in miles

THE PHILADELPHIA SUBURBAN LINES OF THE PENNSYLVANIA RAILROAD, SHOWING THAT SECTION TO PAOLI WHICH WILL SOON BE ELECTRICALLY OPERATED.



VIEW OF THE ELECTRIFIED LINE SHOWING ONE WIRE COMPLETED.



ALL STEEL SUBURBAN COACH SHOWING PANTAGRAPH EXTENDED.

single-phase motors mounted on one truck which will replace one of the present ones. The operating current will be collected from the trolley wire by one pantagraph on each car located over the motor trucks. The control equipment will be arranged in the vestibule of the car. The accompanying diagram shows the suburban routes of the Pennsylvania Railroad radiating from Broad Street Station and also indicates the extent of the electrification which will be completed and ready for operation on April 1st.

Transferring Freight by Mechanical Means.

THE Mercury Manufacturing Company, of Chicago, has placed upon the market a storage battery tractor of high tractive power, which, it is claimed, can be used to great advantage in hauling flat trucks to and from departments and to take the place, to a certain extent, of the hand-truck operations in freight house trucking, as illustrated in the accompanying photograph.

The "Mercury Pullem," for such is its name, is not built to carry any portion of the load, but merely to deliver a straight drawbar pull. The steering of the car is accomplished by turning

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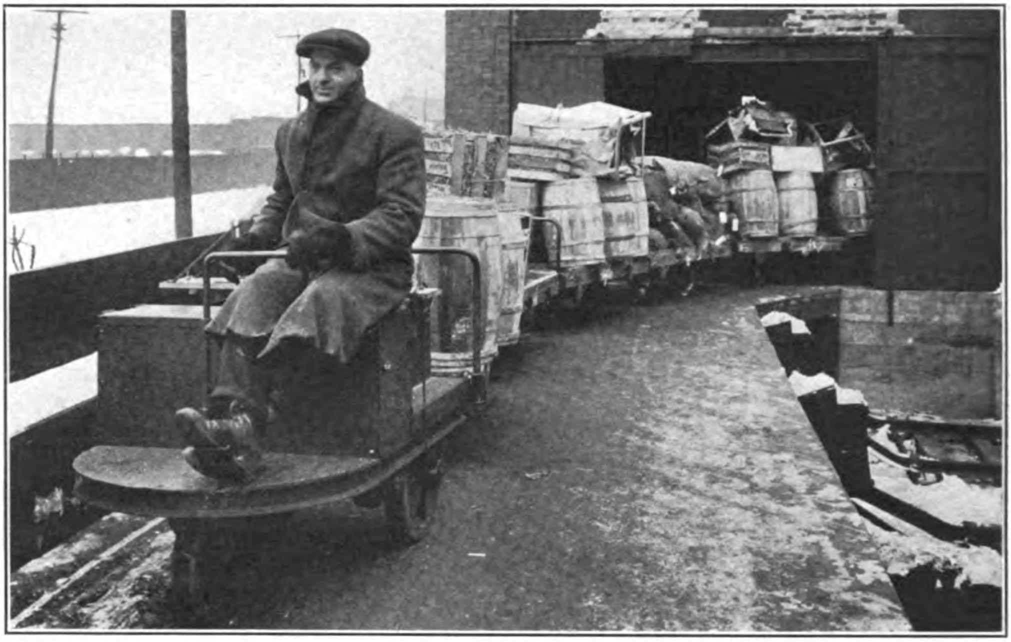
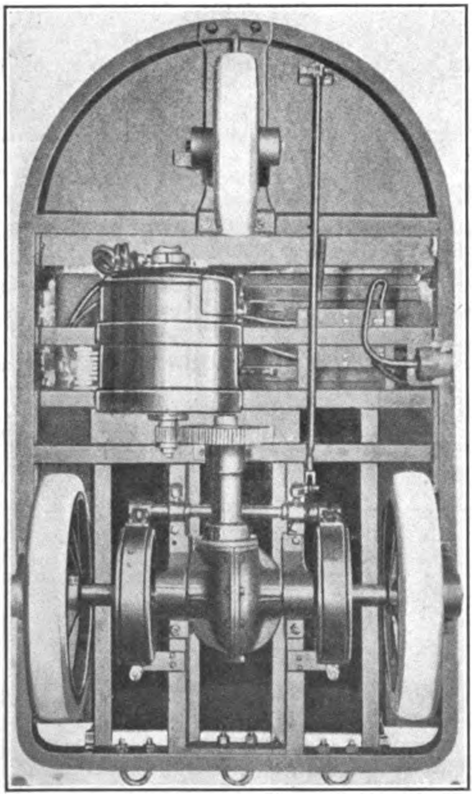
ALL STEEL SUBURBAN COACH EQUIPPED WITH MOTOR AND PANTAGRAPH FOR USE IN THE ELECTRIC SERVICE.



Storage Battery Tractor Hauling Hand Trucks in Freight Station.

the front wheel, while the motor is easily accessible being held in place by two straps passing around it, the ends being fastened by four nuts. The car is ball-bearing throughout and certain parts are made of special steel in order to produce additional strength. The electrical controller, giving four speeds ahead and two reverse, is at the right of the driver's seat and is covered by a hinged iron plate so that it may be examined like the motor, without the use of tools.



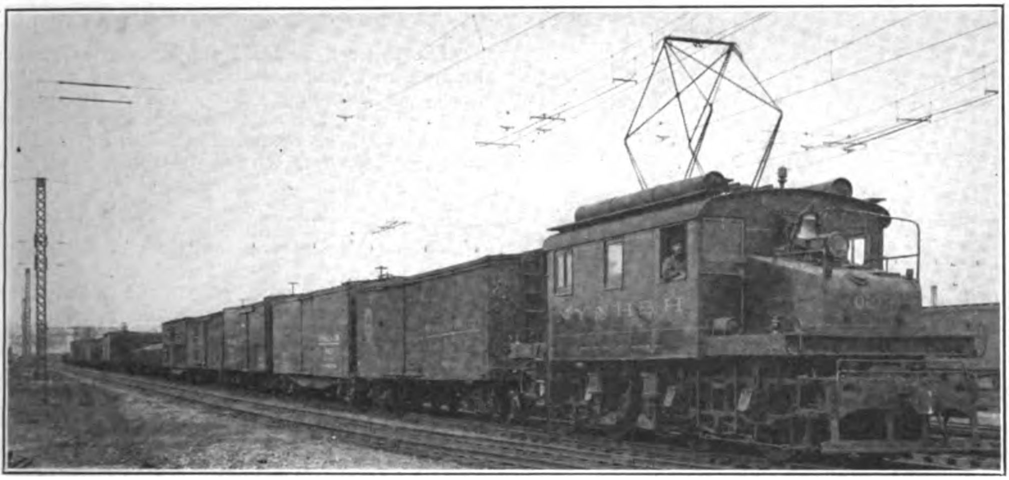
Underneath View of Storage Battery Tractor.

It is asserted that the car can be employed where loads are being carried or pushed in freight houses, docks, mills, warehouses, stores, factories, etc.

An Effective Way of Meeting a New Problem.

WITH the recent completion and opening to traffic of the "electrification zone" of the New York, New Haven & Hartford Railroad, between New York City and New Haven, Conn., that corporation found itself suddenly confronted by a problem that well nigh defied solution. That problem was mischievous "Young America," living anywhere and everywhere along the line from the city-limits of New York to the stately seat of Yale University.

The present officials of the New Haven are schooled in the science of their calling, but there was a time this year after the opening of the line to electrical operation when they felt they had, so to speak, "met their Waterloo." The electrification of the road for seventy-four miles, or 28 per cent of the 265-mile line between New York and Boston is not a terminal improvement, like the substitution of electrical for steam motive power on the Pennsylvania Railroad and the New York Central & Hudson River Railroad for a few miles out from the New York terminals of those systems, but is a complete change in



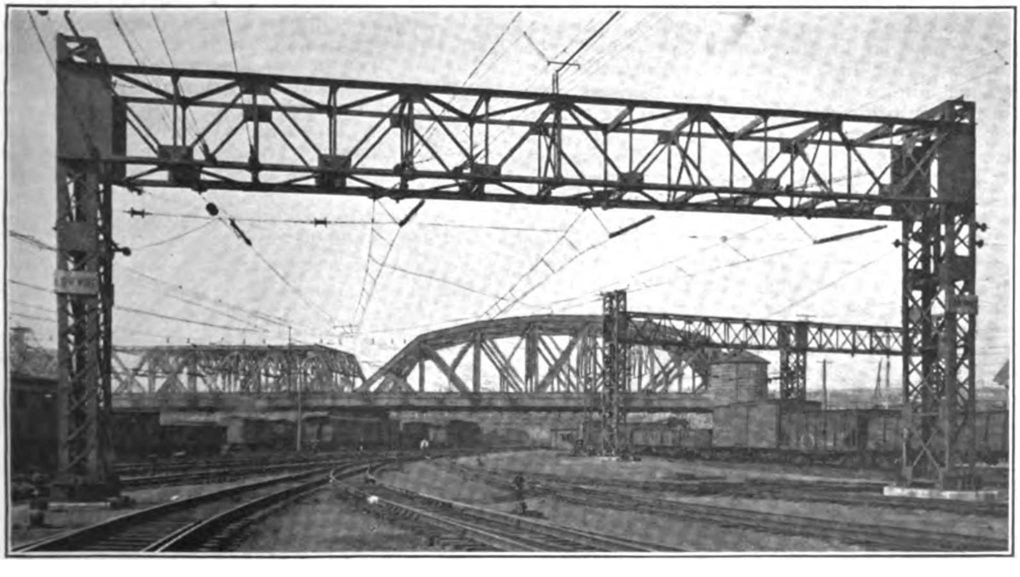
THE ELECTRIC TRAIN GIVES LITTLE WARNING SOUND COMPARED WITH THE STEAM TRAIN AND IT GATHERS SPEED FOUR TIMES AS FAST.

the physical operation of a trunk line. It is intended, ultimately, to extend over the entire distance between New York and Boston. This change, however, depends for its success upon an absolute and unrestricted right-of-way.

Careful and thorough preparations were made for the new service, by which not only express and local passenger trains, but all mail, express and freight traffic are now operated between New York and New Haven. But the New Haven officials could not foresee that the exposed highly charged wires and "circuit breakers," with their dangerous voltage, would prove a magnet for the inquisitiveness and foolhardiness of the juvenile population of the entire shoreline of Long Island Sound.

A few days after the commencement of electrical operation there began to come into the general offices of the road in New Haven and at the Grand Central Terminal, New York, a flood of telegrams from points all along the line. The youngsters had seized upon the "avenue of death" as their special playground. Danger signs, regardless of dimensions or colors of lettering, had proved wholly ineffective. The officials were horrified. The railroad's detectives and the local police of city, town and hamlet were implored to spare no pains nor expense to prevent trespassing upon the company's right-of-way. But the small boy was not to be denied his new plaything—the grim electrical paraphernalia of the road.

The problem was quickly brought to the attention of Edward G. Riggs, executive assistant of the New Haven System and the "man Friday" of President Howard Elliott. Mr. Riggs is one of the country's veteran railroad men. And he is a father. A glance at the situation



LATTICED COLUMNS SUPPORTING THE CATENARY BRIDGES ON WHICH THE WIRES ARE STRUNG LEND THEMSELVES TO CLIMBING BUT THEY COULD NOT BE CONSTRUCTED IN ANY OTHER WAY.

LIVE WIRES
DANGER
KEEP OFF

One of the "Circuit Breakers" in the Electrical Zone of the New Haven Road. More than 2,000 Danger Signs Have Been Placed on the Electrical Apparatus Between New York and New Haven.

sufficed for him to see that the issue was to be met not by ordinary railroad methods, but by a drastic appeal to the parents, the guardians, the teachers, the pastors, the adult friends of the skylarking youngsters who were daily imperilling their lives. Before any serious accidents actually occurred, he sent out broadcast to the communities along the New Haven road a warning that, as was remarked in the Connecticut towns, where it was received, had a "punch" to it.

"This warning is addressed particularly to the small boy, whose venturesomeness and fondness for experimental research in connection with things that are dangerous is well known," read Mr. Riggs' pronunciamento. And then followed a friendly, but very graphic, account of the dangers that lurked in the overhead "avenue of death." His warning uprooted all established precedents of railroad literature. He didn't wait to submit it to the railroad's attorneys, to determine if it adequately "protected" the company. Nor did he wait to prune the picturesque idioms and naive Americanisms that had crept into his statement. Instead, he rushed it to the newspapers published in every city between New York and New Haven, to the district attorneys, sheriffs, mayors, postmasters, police and fire chiefs, to pastors of churches, teachers of public, parochial and private schools, to Y. M. C. A. and Y. W. C. A. secretaries, to magistrates, lawyers, doctors, dentists, storekeepers; in short, to everyone who might command a wide acquaintanceship in the communities along the line.

"In the construction of the overhead system of electrification," he said, "every possible measure has been taken to insure protection, but it is impossible to protect anything completely against the foolhardy and against the boy who 'itches to see just what would happen.' * * * One of the reasons why the overhead system has been used in place of the third-rail is that the danger may be taken away from the immediate vicinity of the tracks. These wires are so placed that no possible harm can come to anyone unless he deliberately invites the hazard of contact with the wire by some extraordinary act.

"The latticed columns supporting the catenary bridges on which the wires are strung lend themselves to climbing. They could not be constructed any other way. But the boy who climbs up one of these columns just for fun and tries to swing from a wire will never climb down again. It won't do for him, either, if his kite gets caught on any one of the wires that look so innocent, to try to poke it off with a pole. He would probably never fly that kite again, and a live boy is much better than a lost kite. Similarly, the boy who, 'just to see the explosion,' sticks a wire down through the aperture of a bridge until it touches one of the trolley or feed wires, will probably pay for it dearly.

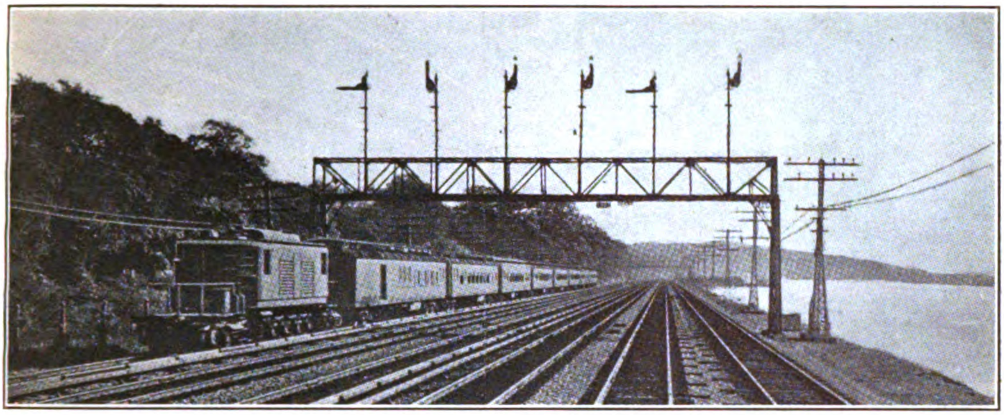
"* * * It is dangerous to cover outside high voltage wires, and, as a matter of fact, there is no better known insulator than air. Under the plan followed in the construction of the New Haven System all contact and feed wires are placed so that in no conceivable way can anyone but a daredevil come in contact with them. As an additional protection, the road has just finished erecting six-foot board fences on the thirty or more highway bridges between Stamford and New Haven. Only by actually climbing over one of these fences could a boy get within reach of any of the wires. At every conceivable point of danger the road has also erected signs reading 'Live Wire! Danger! Keep Off!' More than 2,000 of these signs have been installed. It is, of course, possible that cracks in bridges can be found, through which the small boy could poke something, 'just to see the fireworks.' But he would be courting death.

"One of the great benefits conferred on the community by electrification is the comparatively noiseless operation of trains. But this involves greater peril to trespassers, to boys and to other persons who persist in crossing tracks and regarding a railroad right-of-way as a highroad. The electric train gives little warning sound as compared with the steam train, and it gathers speed four times as fast. So it is best to keep entirely away from an electrified railroad. The increasing recognition given to the overhead system indicates that the day is coming when many railroads will be so operated; hence, it would be well to cultivate the habit of caution now."

The parents and friends of the Connecticut small boy were quick to heed the New Haven official's warning. The greatest mileage of trunk line railroad in the world to be operated exclusively by electricity has yet to report any serious accident arising from the trespassing of minors upon the right-of-way.

Electrical Developments on the New York Central.

THE Twentieth Century Limited, the crack train of the New York Central Lines, is now electrically propelled during the first leg of its twenty-hour journey between New York and Chicago, as is indicated by the accompanying illustration. In many respects this represents a remarkable railroad picture. The perfect track, electric automatic signals and the splendid train run by the latest development in locomotion, form a striking example of the wonderful progress which has been made by the New York Central in the last few years.



The 20th Century Limited of the New York Central Lines being Propelled by an Electric Locomotive.

Terminal Improvements

New Shops of the Chicago & Alton Railroad at Bloomington, Ill.

THERE has lately been completed for the Chicago & Alton Railroad Company at Bloomington, Ill., new shops which in some respects are an innovation; the placing in one building of the several departments of the locomotive shop and the layout of the blacksmith shop being quite different from what has been the usual practice.

The new layout comprises a centrally located locomotive shop building, an L-shaped blacksmith shop located south of the locomotive shop, a two-story storehouse with large storage platform situated east of the locomotive shop, and tire heating and flue rattler building.

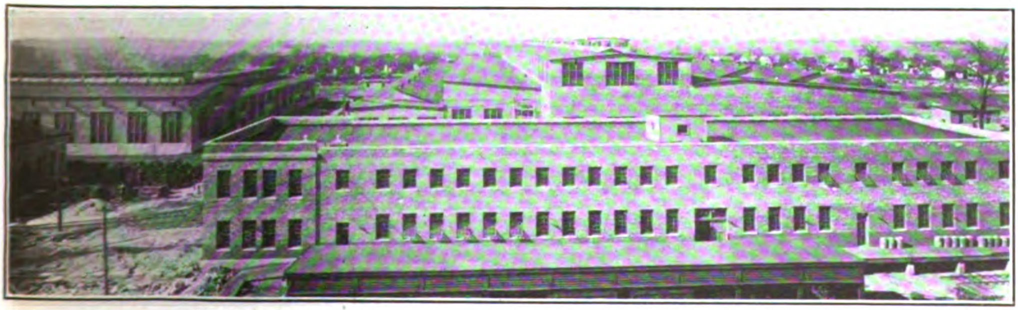
Between the buildings are located yards for storage of material together with the necessary tracks and platforms for the requisite handling and trucking.

Locomotive Repair Shop.

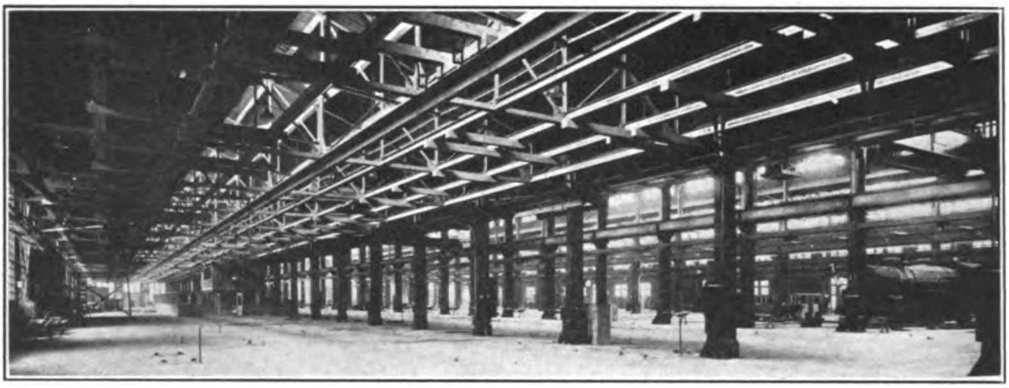
The Locomotive Repair Shop is a building 619 feet in length by 317 feet in width, covering an area of nearly 4½ acres. Inside of this building are the Erecting Shop, Machine Shop, and Boiler and Tender Shop; the different departments having track connection with the various yard tracks and with the storage yards. The building is divided into five longitudinal bays, the central bay being 75 feet wide and the four side bays each 60 feet wide. In the central bay is located the erecting shop and in the side bays are the machine departments, the boiler shop, the tank shop, and the necessary master mechanic's and foreman's offices, together with tool rooms and sub-storerooms.

This building has structural steel frame resting on concrete foundations with side walls of concrete carried up to the window sills. Above the sills the building is of brick with the exception of the high walls of the erecting bay, which are of tile with stucco finish. The roof has wood purlins with 2-in. plank covered with prepared roofing. The floor in this building and in the tin shop consists of a 4-in. sub-base of tarred rock well rolled, covered with a 1-in. layer of sand and tar, in which is embedded an under flooring of 3-in. yellow pine overlaid with a 1 1-16-in. maple floor. The building is exceptionally well lighted; the large window area of the side walls and the sawtooth and monitor construction of the roof giving over 28 per cent of the floor space of lighting area.

The co-ordination of the various departments under one roof without partitions is an innovation in railroad shop layout, and admits of such an arrangement of tools that work and



General View of New Shops of the Chicago and Alton at Bloomington, Ill.



THE LOCOMOTIVE REPAIR SHOP.

materials may pass through the shop in an orderly and progressive manner with the least possible handling.

ERECTING MACHINE BAYS.

The erecting bay is 75 feet wide on column centers with 28 pits. It is served by two traveling electric cranes on two levels, the crane for the unwheeling of locomotives being of 150 tons capacity, equipped with two trolleys of 75 tons capacity, located on the upper runway, while the lower runway carries a ten-ton messenger crane. On every alternate column between the erecting pits jib cranes are provided for handling materials on the front ends of the locomotives.

Adjoining the erecting bay to the south is a 60 ft. bay in which are located the heavy machine tools, served by a ton traveling crane. Still further south is another 60 ft. bay, in which are placed the lighter tools. The heavy tools are all equipped with individual motor drives, while the lighter ones are arranged in groups driven by motors of 20 to 25 horse power.

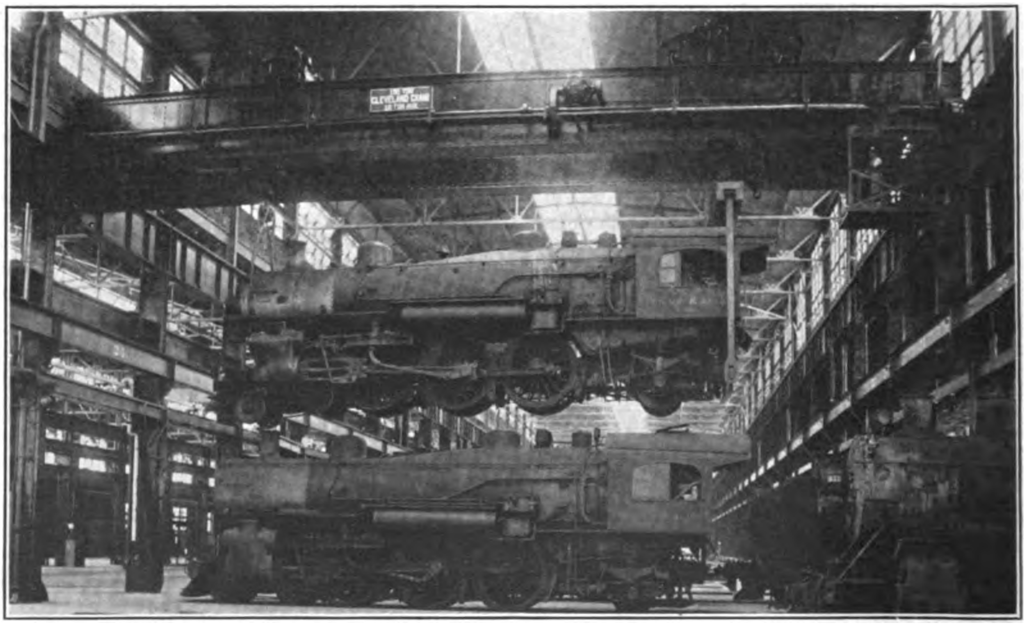
BOILER AND TANK SHOP.

On the north of the erecting bay are two 60 ft. bays for the boiler and tank work. These two bays are served by traveling cranes, one of 15 tons capacity and the other in the boiler assembling bay of 40 tons capacity, equipped with two trolleys.

The hydraulic riveter is centrally located in the boiler shop with tower constructed especially for it, and is served by its own 25-ton crane.

BLACKSMITH SHOP.

The blacksmith shop is of brick and steel construction on concrete foundation similar to that of the locomotive shop. It is an L shaped building 80 ft. in width, one wing being 200 ft. and the other 300 ft. in length. In the 200 ft. wing are



A 150-TON TRAVELING ELECTRIC CRANE EMPLOYED IN LOCOMOTIVE REPAIR SHOP.

assembled all the steam hammers ranging from 300 lbs. to 6000 lbs. and in the 300 ft. wing all the forges and small power tools. A space 100 ft. in length has been partitioned off in this wing to be used as a tin shop. This is a temporary expedient, it being the intention ultimately to remove this department to other buildings when the needs are such as to require this space for blacksmith work.

The roof trusses on the 200 ft. wing are 10 ft. higher than those in the other wing, due to the 30 ft. headroom required to accomodate the jib cranes and hangers.

In the general design, special care was taken to provide a layout that would afford opportunity for an orderly progression of the work through the shop, and ease and economy in transporting materials or parts to the point of final use in the locomotive shop, with which it has suitable track connection.

STOREHOUSE.

East of the locomotive shop and separated from it by a 95 ft. storage yard is located the storehouse, a two-story brick building with wood roof 60 ft. wide by 250 ft. long. The building is constructed without basement, the first floor being on an earth fill and affords facilities for handling and storing heavy materials on a level with car floors.

A wooden platform on concrete piers 10 ft. in width extends the entire length of this building on both sides, while a large storage platform 80 ft. by 150 ft. with floor laid on an earth fill is provided at the north end.

Ample storage bins, carefully arranged in transverse rows, to give a maximum of light in the aisles have been provided. The first floor and platforms, being on a level with the car floors, reduce the cost of handling heavy stock to a minimum.

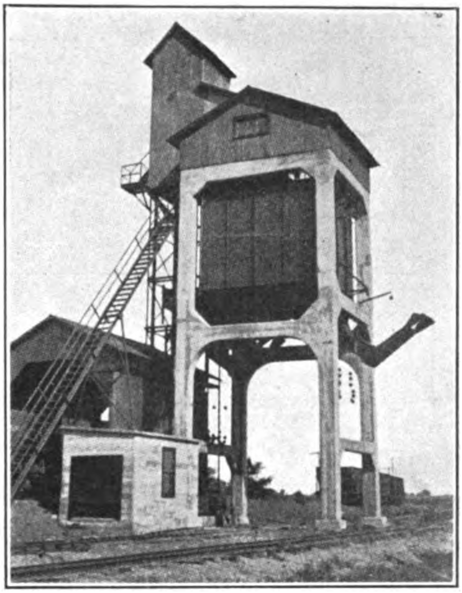
The second floor, where the lighter materials are stored, is served by an electric freight elevator of 5,000 lbs. capacity, while a chute is provided by which small packages, made up on requisitions, can be transferred to the first floor for delivery.

At one end of the building, ample well lighted office space has been provided for the General Storekeeper and his clerks, together with adequate toilet facilities, and also a room has been fitted up as a first aid hospital.

The shops and layouts were designed and constructed by Westinghouse Church Kerr & Company of New York and Chicago, acting in cooperation with Mr. H. T. Douglas, Jr., Chief Engineer, and Mr. J. E. O'Hearne, Superintendent Motive Power, of the Chicago & Alton Railroad—the actual field construction being in charge of Mr. P. J. Watson, Assistant Engineer, Chicago & Alton Railroad.

New Coaling Stations Established on the Great Western.

DURING the past year the Chicago Great Western Railway, in line with its policy of weighing all locomotive coal, completed four coaling stations, one at Kenyon, Minn., one at Carroll, Ia., one at St. Joseph, Mo. and one at Red Wing, Minn. These stations, with the exception of the one at Red Wing, are each of 100-tons capacity and constructed entirely of reinforced concrete and steel. The 100-ton hoppers containing the coal are suspended from scales, and the stations at St. Joseph and Carroll are operated by 15 H. P. general electric motors. The station at Kenyon, Minn., is operated by 15 H. P. Fairbanks-Morse dissilate oil engine. The stations being entirely automatic in their operation, it requires but one man at each coal chute and 75 tons of mine-run coal can be hoisted per hour. The station erected at Red Wing is a 50-ton steam driven coaling station, the hopper being suspended from scales, and a 15 H. P. steam hoist employed for operating purposes. All of these stations, with the exception of the one at Red Wing are so arranged that coal may be taken by locomotives, either on main or passing tracks.



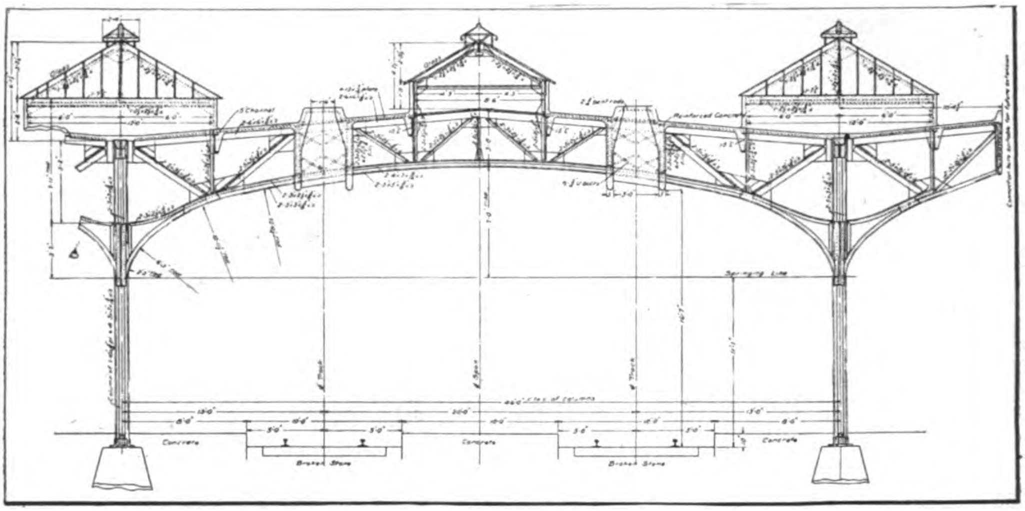
COALING PLANT OF THE GREAT WESTERN AT CARROLL, IA.

The new stations replace the old ones of a wooden gravity type, where the labor cost of handling coal was about nine cents per ton as against 2½ cents per ton under the improved arrangement. As these coaling stations handle in the neighborhood of 85,000 tons of coal each year, the saving, in labor alone, will be about $5,500 and there will also be a great reduction in maintenance on account of the elimination of the old style trestle type coaling station.

The Canadian Pacific Railway's Trainshed at Windsor Street Station, Montreal.

IN the construction of its new Windsor Street Station at Montreal, the Canadian Pacific Railway has developed a trainshed which contains a number of novel features as compared with similar developments in the United States.

A cross section drawing of one of the arches of the trainshed is presented herewith, through the courtesy of the "Canadian Railway and Marine World." Usually in the construction of sheds of this character, the two tracks in

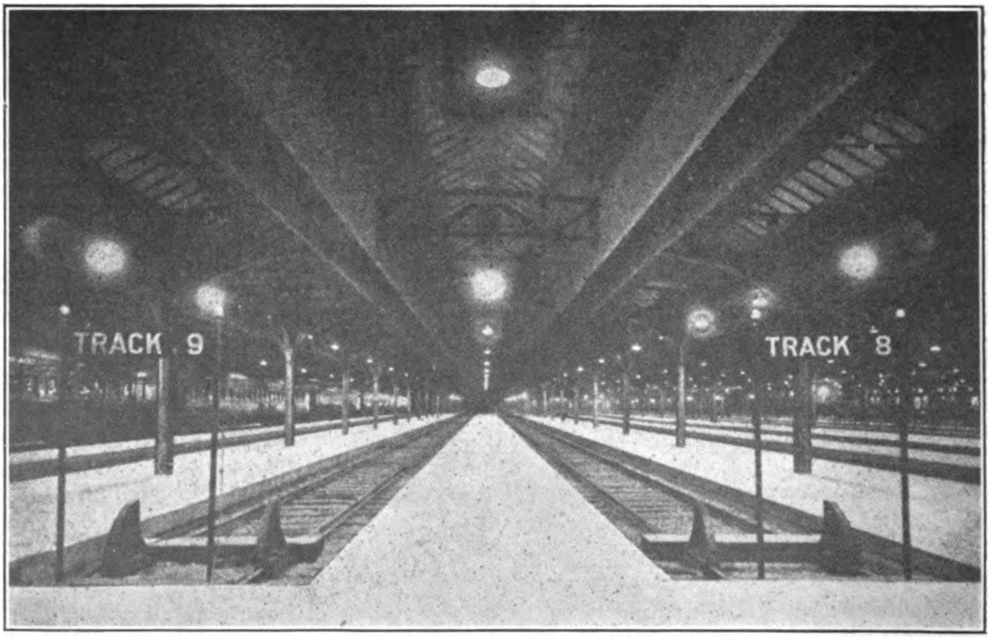


Cross Section of One of the Arches of Trainshed, Windsor Street Station, Montreal.

each arch are side by side, with the usual clearance between. In this instance, however, it will be noted that the tracks are separated with an intervening trucking platform, bringing the track centers further apart, and in consequence raising the elevation of the under side of the roof spans.

These two features of the Windsor Street shed do not give a more open effect, the roof being considerably higher. These spans which are made up of formed lattice girders, are with three exceptions, 46 feet, being spaced at approximately 28 feet centers, the distances varying slightly to meet local difficulties. Down the center line of the archer trusses there are peaked roofed skylights 8½ feet wide extending the length of the shed. These skylights have 1¾ feet walls and are four feet two and one-half inches high at the peak, with glazed roofs, and monitors running their entire length. Similar, but larger, peaked roofed skylights, 12 feet wide and 48 feet long, extend over every two sections along the rows of columns.

The smoke duct framings are lattice girders, made up of angles, and are 3¼ feet deep, one each side of the track center line. They are completely encased in reinforced concrete, which keeps all the steel work free from the injurious effect of the locomotive exhaust fumes. Where the duct crosses the arched trusses, the latter is also encased in reinforced concrete, which is tied in place by eight imbedded ¾-inch U-



Interior of Trainshed, Windsor Street Station, Montreal.

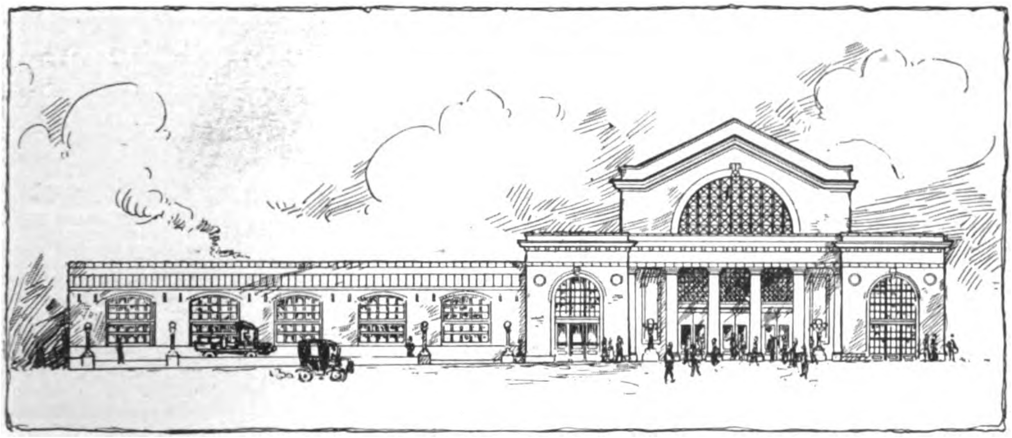
bolts, the lower edge of this joint being higher than that of the duct sides, and rounded, so that the gases will not escape under the edges of the latter into the shed.

Pennsylvania's New Passenger Station at Johnstown, Pa.

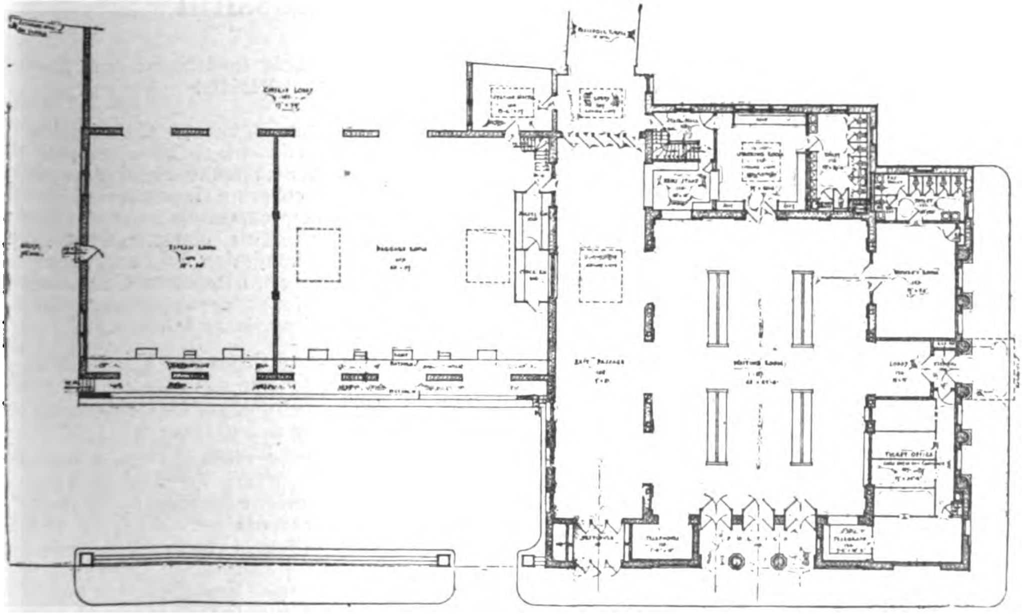
THE Pennsylvania Railroad is about to begin the construction of a new passenger station at Johnstown, Pa., which will be one of the largest and most costly stations between Philadelphia and Pittsburgh. The design, which is shown in the accompanying illustration, was accepted from a competition of leading architects commissioned by the Pennsylvania Railroad to submit designs. The final award was made by a joint committee of the Pennsylvania Railroad officials, a representative of the American Institute of Architects and the head of the Architectural Department of the University of Pennsylvania. The accepted design is the work of Kenneth N. Murchison, of New York.

The exterior of the station will be of classic design faced with rough texture brick and limestone. There will be a covered entrance on the side facing the plaza which will serve passengers arriving and leaving in vehicles, while the main entrance which will be on Iron Street, will be used by passengers arriving on foot or from trolley cars.

The interior of the main waiting room will be finished with Vermont marble eleven feet high, with gray bricks above surmounted by a Gaustavino tile barrel vault. This main waiting



THE ACCEPTED DESIGN FOR THE PENNSYLVANIA RAILROAD'S NEW JOHNSTOWN STATION.

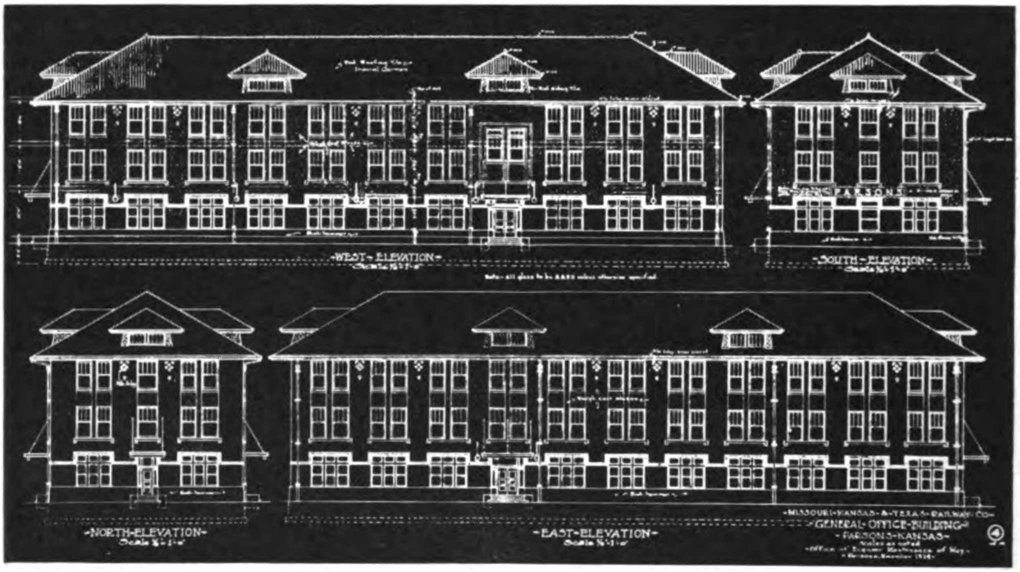


GENERAL PLAN OF GROUND FLOOR OF NEW JOHNSTOWN STATION.

room will be lighted and ventilated on all four sides. The accompanying diagram shows the general interior arrangement. The station being of the through service variety, a tunnel under the tracks serving each platform by means of stairways.

New Office Building of the Missouri, Kansas and Texas at Parsons, Kansas.

A CONTRACT has been placed for the construction of a new office building at Parsons, Kansas, by the Missouri, Kansas and Texas Railroad. The building is being constructed for the purpose of accommodating two hundred or more M. K. & T. employes, who will be transferred to Parsons as soon as it is completed. As the architect's drawing herewith reproduced indicates, it will be three stories in height and of brick and concrete construction and will be located on the property of the railroad immediately south of, and adjoining the new Parsons Station. It will also be identical both in material and construction with the station proper and will cost approximately $50,000.



ARCHITECT'S DRAWING OF NEW OFFICE BUILDING OF MISSOURI, KANSAS AND TEXAS AT PARSONS, KANS.

Interstate Commerce Commission

Proposed Revision of Rules Governing Monthly Reports of Railway Accidents.

THE Commission has prepared and distributed among interested railway officials, a tentative brief of a proposed revision of rules governing monthly reports of railway accidents. This brief is submitted for criticism and suggestions and to be of service to the Commission should be received in the Division of Statistics of that body not later than the 25th instant.

The principal changes embodied in the proposed revision are the addition of—

A requirement of detailed reports of non-train accidents;

A summary statement of train accidents compared on the basis of locomotive-miles;

A summary statement of industrial casualties compared on the basis of man-hours of employes;

and the omission of the extended summary statement of casualties which is required under the rules now in force.

It is proposed to make the revised rules as finally adopted effective as of January 1, 1915.

Classifying Pipe Line Investment and Financial Results.

THE Interstate Commerce Commission has issued an order which requires pipe lines in the future to make regular reports to the Commission covering investments in their properties and their operating revenues and operating expenses. This classification is prescribed by the Commission in accordance with Section 20 of the Act to Regulate Commerce and the introductory letter accompanying the prescribed classifications, is as follows:

Interstate Commerce Commission,
Division of Carriers' Accounts,
Washington, D. C., Dec. 22, 1914.

To Accounting Officers of Pipe Lines:

The accounts for investment in pipe-line property contained herein are the first issue by the Commission of uniform accounts for such investment. The accounts for operating revenues and operating expenses supersede those contained in the classification of Operating Revenues and Operating Expenses of Pipe Line Companies, First Issue, effective on January 1, 1911.

The accounts for the maintenance of physical property have been arranged to correspond, as nearly as practicable, with those for the investment in such property. A single primary account has been provided for the current depreciation of fixed improvements and equipment. It is provided that these charges shall be kept in such manner that the depreciation charges may be reported classified in accordance with the classification of investment in pipe-line property.

The general and special instructions contain a comprehensive statement of the principles underlying the classification, indicating generally the application of the accounting rules. The attention of accounting officers is called to the importance of requiring all employes who are assigned to accounting work in connection with property investment, operating revenues, and operating expenses to familiarize themselves thoroughly with these instructions.

The classification, in tentative form, has been presented for criticism and suggestions to the chief accounting officers of the several pipe-line companies. All suggestions received from such parties have been given careful consideration, and many of them have been incorporated in the classification as here issued.

Fred W. Sweeney,
Chief Examiner of Accounts.

The order of the Commission includes general instructions, list of investment accounts, list of operating revenue accounts and list of operating expense accounts.

Progress in the Physical Valuation of Southern Railways.

THE Valuation Board of the Interstate Commerce Commission now has 160 engineers and accountants employed in the southern division, of which Chattanooga, Tenn., was selected as headquarters about a year ago. The physical valuation of all common carriers in Ohio, Indiana, Kentucky, Tennessee, Mississippi, Alabama, South Carolina, Georgia, Florida and Porto Rico is being directed from the office in the Municipal Building at Chattanooga in charge of Howard M. Jones, a member of the Valuation Board.

Of the southern divisional headquarters' entire force of valuation experts, 130 are civil, mechanical, signal and architectural engineers, nearly all of whom are constantly employed in the field. About 30 experts are employed in the land and accounting departments. Twenty or 25 engineers, accountants and land valuation experts are constantly at the Chattanooga office, the number varying at different times according to the work to which the attention of the force is directed.

At present, estimates are being made of the physical value of the Central of Georgia, the Big Four, and the Atlanta, Birmingham & Atlantic Railroads. This work sends engineers and accountants from the Chattanooga headquarters as far north as Ohio, Indiana and parts of Illinois. Others are engaged in Alabama, Georgia and South Carolina.

Engineers in the field are domiciled in camp cars, which are old Pullman sleepers remodeled to suit the requirements and convenience of the occupants. Accountants engaged in securing valuation statistics in railroad offices, reside in hotels wherever their assignments take them.

With one or two exceptions the regular force of more than twenty have families and reside in Chattanooga. District Engineer J. Y. Bayliss and Assistant District Engineer W. G. Atwood are among them. Charles S. Davis, a well known engineer who resided at Toledo, Ohio, at the time he was put in charge of field valuation of railroad bridges, is erecting a fine bungalow on Signal Mountain, the latest and already very popular resort near Chattanooga at 2,000 feet above sea level.

No further enlargement of the scope of valuation work in charge of department chiefs at Chattanooga will be attempted until another appropriation is made by Congress.

Commission to Discontinue Monthly Bulletins of Revenues and Expenses of Steam Roads.

IN view of the frequent preparation of a press bulletin giving summaries of monthly reports received up to date of issue, the Commission has decided to discontinue the publication of its monthly Bulletins of Revenues and Expenses of Steam Roads in the United States with the bulletin for the month of August.

Santa Fe Man to Become Examiner for Interstate Commerce Commission.

JOHN W. ROBERTS, of Topeka, assistant chief clerk to E. H. Bunnell, auditor of disbursements of the Santa Fe, has been appointed examiner of accounts for the Interstate Commerce Commission, with headquarters in Kansas City. His territory will cover North and South Dakota, Nebraska, Kansas, Missouri, Texas and Oklahoma. Mr. Roberts has just completed his fifteenth year in the service of the Santa Fe. For the last three years he has been assistant chief clerk in the auditing department. Only three months in the fifteen years was he out of Santa Fe service, when he was chief clerk to General Manager Cain of the Rock Island in Topeka. In the same year he became chief clerk to the late General Manager Hurley. He was later transferred to Amarillo in the same position.

Annual Report of the Chief of the Division of Safety.

THE Commission has published the report of the Chief of the Division of Safety for the fiscal year ended June 30, 1914. This report shows that 790,822 freight cars, 26,746 passenger cars and 32,761 locomotives were inspected, of which 5.79 per cent of the freight cars, 1.04 per cent of the passenger cars and 4.98 per cent of the locomotives were found with safety appliances either missing or defective. The report asserts that these percentages are exceptionally low, especially in view of the fact, in addition to maintaining appliances in operative condition, carriers have been charged with the duty of standardizing their old equipment to meet the requirements of the Commission's order of March 13, 1911.

A decrease is reported in the number of defects in couplers and uncoupling mechanisms which it is believed is due to more diligent inspection as well as to the improvement in design of these appliances, which has been brought about by the efforts of the Master Car Builders' Association to develop a standard coupler, combining the maximum of efficiency with the minimum of detail in construction. It is noted that nearly 50 per cent of the defects reported under the classification "Uncoupling Mechanism" have consisted in broken uncoupling chains, while more than an additional 10 per cent of such defects have resulted from uncoupling chains being kinked in coupler heads. It is asserted that defects of this character could be entirely eliminated by the use of uncoupling devices in which the chain is not used, with the result that the personal injuries due to defective uncoupling mechanism would be materially diminished and the most prolific cause for prosecutions under the safety appliance acts would be removed.

The period within which the carriers are to have rendered all cars in service on July 1, 1911, conformable to the standards prescribed will expire on July 1, 1916. From information furnished by the Commission's inspectors, it is evident that many of the carriers have not given these requirements sufficient attention. The number of freight cars already equipped is small as compared with the number to be equipped, and only the exercise of great diligence will enable some of the roads to bring their equipment up to the required standard within the time prescribed by the Commission's order.

Delayed observance of the requirements of this order will increase the difficulties of interchange, and result in a situation similar to that which existed during the period of transition from the link-and-pin to the automatic coupler. Carriers that shall have complied with the requirements of the order will, after July 1, 1916, obviously be in better position properly to meet their operating problems than those carriers who have failed to bring their equipment up to the required standard. Such carriers will not only be able to handle traffic more expeditiously than their derelict connections, but, being charged with the alternative of equipping foreign cars after receipt and before movement on their lines, will naturally refuse to accept cars that are not standard or permit the movement of such cars on their lines. The recommendation that all carriers be required to submit to the Commission quarterly or semiannual reports of their progress in the standardization of equipment is respectfully renewed.

The question of receiving and delivering defective equipment in interchange, and of hauling such equipment for the purpose of repair, has been somewhat clarified by recent court decisions construing the proviso in Section 4 of the Act of 1910. The trend of these decisions is to the effect that a car defective as to safety appliances may not lawfully be hauled by a carrier even for the purpose of repair unless (1) it was properly equipped at the inception of its journey, (2) became defective while in use by such carrier on its line of railway, and (3) has been discovered to be defective, when it may be hauled to the nearest available point where it can be repaired, provided (a) such movement is necessary for the purpose of making such repairs, and (b) that such repairs can not be made except at such repair point.

It is anticipated that as soon as the significance of this proviso is appreciated by the carriers the situation with respect to interchange will be improved. In this connection it is suggested that a lack of familiarity with the standards on the part of interchange inspectors and repairmen will cause many delays in interchange which may be avoided by proper education of employes. It is necessary to the quick dispatch of traffic that standard equipment shall be recognized as such and that equipment not standard shall be promptly rejected or repaired. The importance of carriers requiring responsible employes at points of interchange to have a working knowlelge of the safety-appliance acts, and a comprehensive understanding of the various orders of the Commission supplemental thereto, can not be too strongly emphasized.

The handling of chained-up cars in revenue trains or in connection with cars commercially used is somewhat less prevalent than heretofore, but occasional instances are still reported for prosecution. The law is plain in prohibiting the hauling of cars by means of chains instead of drawbars unless such cars, when so hauled, are not in revenue trains or in association with cars commercially used, and are hauled for the purpose of repair; and then such cars may be moved only to the nearest available point where requisite repairs can be made.

The indiscriminate handling of logging cars having drawbars of various heights, in connection with other equipment, has been the subject of numerous complaints, some of which, upon investigation, have been made the basis of prosecution. The proviso in section 6 of the act of 1893, as amended April 1, 1896, prescribes in definite terms the circumstances under which logging equipment lawfully may be used, and there is no justification for any violation of the law in this respect.

The maintenance of efficient hand brakes as well as of power brakes is prerequisite to safety in the operation of trains. Practically all cars are now provided with these safeguards, and the operation of trains with less than 100 per cent efficiency in braking power, either by reason of air brakes being cut out or hand brakes being inefficient or not working in harmony with the power brakes, is seriously to be condemned.

The efficiency of hand brakes should be determined by effective tests, such precautions being as necessary to safety as are the standing and running tests of power brakes. The word "efficient" as used in the statute has recently been judicially defined as comprehending the efficiency of the hand brake for the purpose of holding a car or train, as well as its efficiency as a matter of safety to employes engaged in work requiring the use of hand brakes.

The general installation of air gauges and conductor's valves in caboose cars would provide an additional factor of safety in the operation of trains. By means of the air gauge, trainmen in the caboose may at any time note the train-line pressure, and by observing its variations will be in position to take proper measures to insure the safety of their trains should pressure fall too low.

The caboose gauge is of value also in exhibiting the variation of pressure at the rear end of a train when charging up after the train line has been cut for any purpose and recoupled, or when air brakes are released after an ordinary application.

The conductor's valve in the caboose gives to trainmen control of the braking power, and when used in cases of emergency would often serve to avoid a serious accident.

The need for these devices continually becomes more pressing owing to the tendency to operate longer and heavier trains. As the train line is increased in length the difficulty of maintaining air brakes in an efficiently operative condition progressively increases. Owing to train-pipe friction, ordinary leaks in pipe and hose connections, etc., it is often impossible to maintain adequate brake-pipe pressure at the rear of long trains or to secure the proper recharge of auxiliary reservoirs after a brake application and release. Much can be done by trainmen to remedy these unsafe conditions if they are advised of their existence, but without the air gauge at the rear of the train they must necessarily remain in ignorance of the actual condition of the brakes on their train.

Numerous inquiries have been directed to the Commission relative to the propriety of using drive screws or fluted nails to fasten running boards to saddle blocks. The Commission's order very clearly provides that running boards shall be securely fastened with screws or bolts, and the substitution of other material is not to be permitted.

Continued misapprehension on the part of railroad employes with respect to the significance of the stenciling on cars, required by the Master Car Builders' Association, warrants this repeated explanation. A car marked "United States Safety Appliances, Standard," indicates that it complies in all respects with the standardization order of March 13, 1911, while a car marked "United States Safety Appliances" signifies merely that it is a car which was in service on July 1, 1911, and which has been equipped in accordance with the provisions of the standardization order except as to those appliances permitted to remain as located during the life of the car or until its renewal as outlined in paragraphs A, D, and G of the extension order.

The spirit of co-operation exhibited by the carriers generally during the past fiscal year is admirable, and has contributed immeasurably to an effective administration of the law.

The report calls attention to the investigation of safety devices by the Division of Safety during 1914. In this particular, it states as follows:

On October 1, 1914, plans of 315 devices had been presented for consideration; of this number 184 had been examined and opinions regarding the devices transmitted to the proprietors. Of the number of plans examined, 131 of the devices disclosed were so impracticable or crude that they were considered practically worthless; 12 possessed meritorious features, but as a whole required further development before being entitled to serious consideration; 19 were found to disclose devices which were not intended primarily to increase safety and which would not affect the safety of railway operation sufficiently to warrant further consideration being given them in these investigations; and 22 disclosed devices which were considered to possess merit from the standpoint of safety, experimental tests of certain of these latter devices being desirable to determine their practical utility.

During the past year it has been noted that a comparatively large proportion of the designs of automatic train-control systems are based upon fundamentally sound principles and possess meritorious features, and the progress in developing promising designs is evidenced also by the number of devices which have been approved for test. While most of the devices examined have been of the general types described in the reports of the Block Signal and Train Control Board, it has been found that a number of persons are working upon magnetic and inductive devices of types which have not heretofore been practically developed.

An inspection was made in March of the installation of the Miller train-control system on the Chicago and Eastern Illinois Railroad between Danville, Ill., and Hoopston, Ill., a distance of approximately 25 miles. At that time about 90 engines had been equipped, 20 of which were in service in the territory where the track installation was located.

Information has also been received regarding experiments with train-control devices on several railroads. Within the past year the American Railway Association has adopted certain definitions and requisites for installation for automatic train-control systems and has specified certain adjuncts which may be used in connection with such systems.

As noted in the foregoing, tests were made of an installation of the Gray-Thurber train-control system covering a period of approximately three months, and as a result of these tests the conclusion stated in the foregoing was reached. It is not to be expected that any device which is submitted for consideration and test will be ideal or perfect, nor that the tests contemplated by the legislation under which these investigations are carried on can result in the perfection of complete development of such devices. All that can reasonably be expected from such tests is to determine whether or not the device will operate as intended under varying operating and service conditions, as well as the conditions under which the device will break down or fail to operate, and the degree of protection afforded; in short, to determine whether or not the device is properly designed and constructed and possesses sufficent merit to warrant railroad companies in taking it up for the purpose of developing it to meet their particular operating and traffic requirements. As has been the case with railroad signal systems and other safety devices, much of the practical development of automatic train-control systems must be brought about by railroad companies themselves after those devices have been installed and placed in practical service. The tests conducted by the Block Signal and Train Control Board and by this division have demonstrated that a number of train-control devices are now available which, if installed and used for the purpose intended, would increase the safety of railroad operation and which possess sufficient promise of further development to warrant railroad companies in according them serious consideration.

A tabulation of statistics pertaining to block signals, interlocking plants, and the telegraph and telephone for transmission of train orders as used on the railroads of the United States was compiled by this division and published by the Commission under date of January 1, 1914. As shown by this publication, the total length of railroad in the United States operated under the block system on January 1, 1914, was 86,736.9 miles. Of this total, 26,569.3 were automatic and 60,167.6 were non-automatic. Comparing these figures with the corresponding figures contained in the bulletin of January 1, 1913, there was an increase of 4,350.5 miles in the length of road operated by the automatic block system and a decrease of 1,563.4 miles of road operated by the non-automatic block system. The net increase during the year in mileage of road operated by the block system was 2,787.1 miles.

The bulletin also contains information, not heretofore published in these annual bulletins, regarding the color of night signal indications employed on different roads and the mileage on which signals are electrically lighted; also data pertaining to interlocking plants.

In this connection attention is called to the recommendation made in previous reports of the Commission for the compulsory adoption by railroads of the block system.

Report of Investigation of Accident on the Chicago, St. Paul, Minneapolis and Omaha Railway near Bigelow, Minn.

THE following abstract is taken from a report of the chief of the division of safety, covering the investigation of the accident referred to in the above heading:

On February 9, 1914, there was a derailment of a passenger train on the Chicago, St. Paul, Minneapolis and Omaha Railway near Bigelow ,Minn., resulting in the death of 1 passenger and 1 express messenger, and the injury of 11 passengers, 2 mail clerks, 2 porters and 2 conductors. After investigation as to the nature and cause of this accident, I beg to submit the following report:

The derailed train was eastbound train No. 2, known as the "Twin City Limited," running from Omaha, Neb., to Minneapolis, Minn. It consisted of 1 mail car, 1 express car, 1 buffet car, 2 wooden Pullman sleeping cars, 1 chair car, and 1 smoking car, all of wooden construction, excepting the mail and chair cars, which were of steel construction. The train was hauled by locomotive No. 371 and was in charge of Conductor Hay and Engineman Hammer. Train No. 2 passes Bigelow at 2.40 A. M., 11 minutes late, and at about 2.45 A. M. was derailed at a point about 2½ miles east of Bigelow, while running at a speed estimated to have been about 45 miles per hour.

The locomotive broke away from the cars and came to a stop at a point about 1,650 feet beyond the point of derailment, the forward pair of engine truck wheels and the rear pair of tender truck wheels being derailed. All of the cars in the train were derailed, and with the exception of the express and smoking cars all came to rest on their sides. The express car was bottom up and damaged to such an extent that it was afterwards burned, while the smoking car remained upright. Illustration No. 1 is a view looking in a westerly direction. The remains of the express car can be seen at the right of the mail car, which is shown on the extreme left. It developed that the cause of the accident was a broken rail, the fragments of which were sent to the Bureau of Standards for examination and test. The conclusions of the Bureau were as follows:

The type of failure of this rail is very probably a "split head," the split having developed during service and not during fabrication.

The chemical, metallurgical, and physical examinations have shown the rail to have the following characteristic properties:

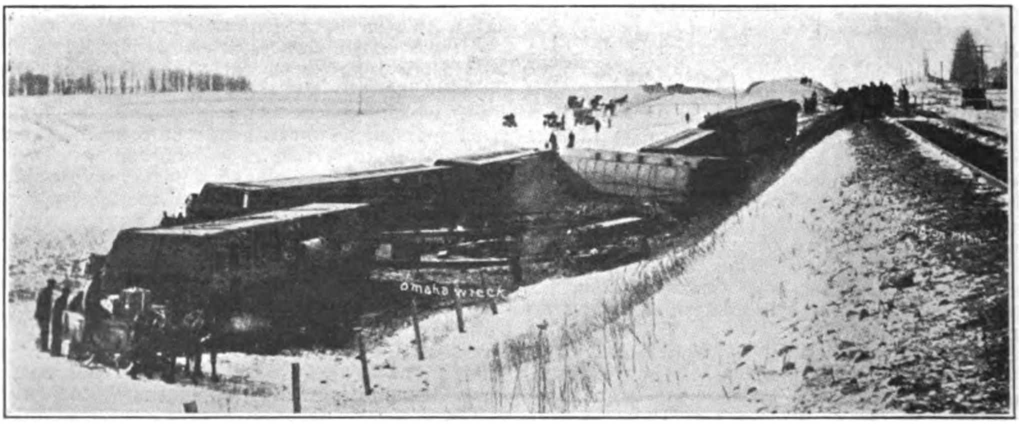
The steel is a very coarse-grained Bessemer steel of about normal carbon content and without excessive segregation about the split, but the inner portion has a phosphorus content considerably above the maximum specified for rails of this type and weight.

The metal is decidedly inhomogeneous, badly streaked, and laminated, especially in the web, and contains microscopic fissures. The outer portions of the rail are rich in ferrite, and consequently soft and ductile, as is shown by the flow of the metal in the head under wheel loads.

As this flow of metal in the head of the rail indicates that the metal was subjected to stresses beyond its elastic limit, it seems very probable that the split was caused by repeated applications of excessive stresses to a poor quality of rail material.

Although there is no excessive segregation surrounding the split, the possibility of a piped rail must not be excluded, as it may be that the rail was rolled from the part of the ingot containing the lowest portion of a pipe, caused by contraction of the metal while cooling, where there is little or no segregation.

If there was any inspection before the railroad company's acceptance of the rail lot, of which this rail was one, it is evident that it either failed to discover the poor quality of the steel of this rail or the rail was accepted in spite of its quality. If



General View of the Derailment which Occurred on the Chicago, St. Paul, Minneapolis and Omaha Railroad near Bigelow, Minn.

the character of the inspection was such that the inhomogeneity of the rail could not be detected by it, then methods different from the ordinary ones ought to be resorted to—e. g., tensile tests of a certain number of rails of each lot might be made in addition to the usual chemical and drop tests. Since, however, even with the best inspection at the mills, rails of poor material might enter into a track, it is clear that a continual and careful inspection of the rails ought to be made while they are in service, and if any flow of the metal as is shown at the outside of the head in Plate B manifests itself in any of them, these should at once be removed from the track, since such flow of metal indicates that the material is being stressed beyond its elastic limit, a condition which is dangerous in any structure.

The accompanying illustration, which is a section of the broken rail, 12 inches from the west end, clearly indicates where the trouble began. In fact, investigations by the Bureau indicated that the split in the head of this rail extended from the west end to within at least 24 inches of the east end, although it does not show on the outside of the east end. The appearance of the sections after etching, indicates rather poor material, especially in the web which is badly streaked and laminated. The report also states that the metal on the head had flowed somewhat under the wheel pressure, indicating that it was rather soft and weak for the service to which it had been subjected.

TRAFFIC AND RATES.

Scale Employed on Increasing Class Rates.—C. C. McCain, Chairman of the Trunk Line Association Committee, it is reported, on December 28th submitted to the Interstate Commerce Commission the scales of rates to be used in making the general increase in class rates granted to the Eastern roads by the Interstate Commerce Commission on December 18th last. To points intermediate between New York and Chicago, taking 71 per cent and higher of the New York-Chicago class rates, the new tariffs will become effective on January 15th, and to points taking a lower percentage of the rates, they will become effective February 1st. The following facts have been published in the newspapers:

The first class rate between New York and Chicago will be 78.8 cents a hundred pounds and the other five classes will be graded proportionately lower.

From New York to points taking 60 per cent of the rates, the charges on the various classes per hundred pounds will be as follows: First class, 47.3 cents; second, 41c.; third, 31.5c.; fourth, 22.1c.; fifth, 18.9c.; and sixth, 15.8c.

To the same destinations, the rates from Philadelphia will be six cents a hundred pounds lower on first class traffic and about the same amount lower on other classes; and from Baltimore about two cents lower than the Philadelphia rates.

From Boston the rates will be five cents a hundred higher than from New York, while from Albany, N. Y., they will be the same as from Philadelphia. From Syracuse and Rochester, N. Y., they will be 3.5 cents below the Philadelphia and Albany rates.

To Canadian destinations the first class rate from New York will range from 59.9 cents to 78.8 cents a hundred pounds and it will be the same from Philadelphia and Baltimore. From Albany to Canadian points the first class rate will range from 44.1 cents to 63 cents, and from Syracuse and Rochester from 41.9 to 55.2 cents.

The tariffs provide that from New York to all Canadian points via the People's Line steamers and rail via Rouses Point, N. Y., not less than standard all-rail rates shall apply.

To points taking higher than 78 per cent of the class rates on traffic moving by way of Long Island Sound, New London, Conn., or Boston, Mass., or Portland, Me., a differential eight cents a hundred pounds lower than the standard all-rail rate is established, with proportionately lower differentials on other classes.

Co-operation Between Railroads and Milk Shippers Gives Pittsburgh Better Milk.—That the quality of the milk sold in our large cities depends largely upon the sort of treatment it receives from the time the farmer leaves it at the way station until it is received at the big urban milk distributing market has been clearly established by a recent Federal investigation of the milk supply of Pittsburgh. It was also made clear that the excellence of a city's milk depends importantly on constructive co-operation between the milk wholesalers and the railroads in the proper refrigeration of the cans after they are delivered for transit. As the result of this study and efforts on the part of the Department's representatives to bring the railroads and the great milk wholesalers of the cities into co-operation, Pittsburgh is now getting the bulk of its milk with a much lower bacterial count and in much better condition.

Instead of getting milk that on an express or freight car got so warm in an eight or nine hours' trip from the country station to the city that the cans frequently blew up or "geysered" and spread milk all over the car, the Pittsburgh housewife is now getting a product that is put into a modern refrigerator car at the country station and is kept chilled until actually delivered to her ice box. Examination of milk received at Pittsburgh showed bacterial counts as high as 22,800,000 organisms per cubic centimeter. The temperature of the milk in the baggage cars ran from 46 degrees, Farenheit, up to 73 degrees, with most of the samples well above 65 degrees. Needless to say, at these temperatures bacterial deterioration was very rapid. These temperatures were in many cases far higher than the temperatures of the milk as taken on at the pick-up way stations. In fact some cases of as much as 15 degrees increase of temperature were found, between the time the farmer delivered his milk to the railroad and the time of its arrival in Pittsburgh. At these temperatures much of the milk worked rapidly, which led to the frequent geysers from the cans.

The milk situation in Pittsburgh was fairly typical of that of many large cities. Some of the milk came from nearby dairies, but a large proportion of it had to travel eight or nine hours, from distant dairies in Ohio, before it was delivered. Investigation of the milk at its source showed that the farmer was delivering a good article at his shipping point but that in transit the milk rose in temperature as much as 15 degrees while being carried in ordinary baggage cars. The railroads pointed out that under the system of shipment, where milk was delivered several times a day in small lots at innumerable pick-up stations, they could not afford to supply refrigeration and were obliged to handle the shipments as ordinary baggage. They stated that a pre-requisite to refrigeration would be the consolidation of shipments so that a car lot of milk could be quickly taken on board. If this were done, they pointed out, they would be able to put on a refrigeration service.

The Federal representatives then went to the leading milk dealers of Pittsburgh and from them secured promises of co-operation in consolidating shipments so that the railroads, instead of having to pick up small quantities at way stations several times a day, would have to handle only one or two pick-ups of important quantities. They were able to get the dairy farmers to agree to deliver their milk at the pick-up stations at definite hours. The railroads then pointed out that they could not supply refrigerator cars, keep them iced, and refrigerate milk for the same freight rate at which they were carrying milk as ordinary baggage. The milk dealers agreed that some increase was justifiable, and offered to pay 15 per cent more. The railroads thought that a 25 per cent increase was just. After a number of conferences the Department's representatives succeeded in getting the dealers and the railroads to accept a twenty per cent increase. The Interstate Commerce Commission, after representation by both sides, agreed to a new tariff allowing this twenty per cent increase.

As soon as the tariffs were adopted the Pennsylvania Railroad stated its readiness to refrigerate 7,000 gallons of milk a day. The Baltimore and Ohio Railroad notified the Department that it would at once build refrigerator cars and, as soon as they were constructed, would inaugurate a refrigeration service covering milk from Painesville, and Akron, Ohio, and intermediate stations. The Lake Shore and Michigan Southern also agreed to operate a refrigeration service from Andover, Ohio, Oil City, Pennsylvania and intermediate stations. The Erie Railroad and the Pennsylvania and Lake Erie also accepted the new arrangement.

Under this plan the long haul milk will be picked up directly in refrigerator cars, and railroad collecting centres will be established where milk shipped for a short run on branch lines will be collected and put at once into refrigerator cars bound for Pittsburgh.

The results of this service will, in the opinion of the Federal experts, undoubtedly give the people of Pittsburgh a better milk supply than they have had heretofore. The experts, however, regard as of greater moment to the people of the United States the discovery that such a matter can be handled co-operatively between the railroads and the shippers where an impartial and accepted referee can arrange the conferences. It was also interesting to note that the somewhat hostile attitude between the railroad men and the milk shippers, as the conference progressed, finally gave way to cordial friendliness and confidence, and a realization of the existence of a common interest. It is believed that this agreement will point the way to the settlement of many difficulties in the handling of perishable products, through conference rather than through resort to legal process.

To carry on the service the railroad companies and milk dealers are building large ice houses in the dairy sections for the purpose of storing ice for the coming winter, to take care of the refrigeration during the next season. The milk dealers state that on an average the milk is being received in Pittsburgh at a temperature not exceeding 48 degrees F. The smaller dealers are at the present time able to have their milk remain in the refrigerator cars until time to deliver in the city, while heretofore it was necessary for them to meet the milk trains upon their arrival at Pittsburgh during the night from 10.00 P. M. to 2 A. M., and, in order to hold the milk, to remove same to their dairies and refrigerate it. The refrigerator cars save such re-handling of the milk and then make possible a further reduction in cost of refrigeration in Pittsburgh, said to be in excess of the added rates.

Foreign Trade Movement.—Figures made public by the Department of Commerce show that November imports totaled $126,467,007, against $138,080,520 in October, $139,710,611 in September, and $129,767,890 in August and were $21,769,529 less than in November last year. November exports totaled $205,766,424, against $194,711,170 in October, $156,052,333 in September, and $110,367,494 in August, and were $39,772,618 below those for November last year. This falling off included a decrease of $71,401,324 in cotton, all other articles as a whole showing a net increase of $31,628,706.

The excess of exports over imports for the month was $79,299,417 compared with $56,630,650 in October, $16,341,722 in September, and an import balance of $19,400,406 in August.

Of the November imports, 62.1 per cent entered free of duty, against 51.7 per cent in November, 1913, and 58.6 per cent in November, 1912.

Comparing the trade movements in the eleven months ended November 30, 1914, with those of a like period of 1913, imports show a total of $1,674,619,401 against $1,608,570,909 last year; and exports, $1,867,879,583, against $2,250,822,664 last year.

Western Farmers Advocate Increase in Freight Rates.—An increase in freight rates is advocated in an article given out to the press by Peter Radford, National Lecturer of the Farmers' Educational and Co-Operative Union of America, an organization with a membership of six million farmers. Mr. Radford's article says, in part:

"It is the policy of the Farmers' Union to meet the issues affecting the welfare of the farmers squarely and we will do so on the rate increase question.

"The transportation facilities of the United States are inadequate to effectively meet the demands of commerce and particularly in the South and West additional railway mileage is needed to accommodate the movement of farm products. If in the wisdom of our Railroad Commissions an increase in freight rates is necessary to bring about an improvement in our transportation service, and an extension of our mileage, then an increase should be granted and the farmer is willing to share such proportion of the increase as justly belongs to him.

"We do not know what constitutes a basis for rate making and have never heard of anyone who did claim to know much about it, but if the prosperity of the farm is a factor to be considered and the Railroad Commission concludes that an increase in rates is necessary, we would prefer that it come to us through articles of consumption on their journey from the factory to the farm. We would, for example, prefer that the rate on hogs remain as at present and the rate on meat bear the increase, for any farmer can then avoid the burden by raising his own meat, and a farmer who will not try to raise his own meat ought to be penalized."

Panama Canal Tolls.—The receipts of tolls on vessels making use of the Canal reached and passed the $1,000,000 mark on November 18th, and at the close of business on November 30th, the total collections amounted to $1,135,205.01.

Collections of tolls began in May, 1914, with the starting of a traffic in barges, towed by Canal tugs, which lasted until the opening of the Canal to ocean going vessels on August 15th. The following is a summary of the receipt of tolls, by months, to December 1st:

Prior to August 15	$11,610.69
August 15 to 31	88,401.80
September 1 to 30	269,863.00
October 1 to 31	378,087.12
November 1 to 30	387,242.40
Total	$1,135,205.01

The transits of vessels during this period, with the totals of cargo carried, were, with reference to direction, from Pacific to Atlantic, or eastbound, and from Atlantic to Pacific, or westbound, as follows:

Month	Eastbound.		Westbound.		Total	
	Vessels.	*Cargo.*	*Vessels.*	*Cargo.*	*Vessels.*	*Cargo.*
Aug. ...	12	57,182	12	49,106	24	106,288
Sept. ...	30	186,776	27	135,262	57	322,038
Oct.	40	252,288	44	168,069	84	420,357
Nov. ...	38	242,291	54	206,510	92	448,801
Total .	120	738,537	137	558,917	257	1,297,184

Of the total of 257 vessels, 227 were laden and 30 were in ballast, or by nature no cargo-carrying vessels.

As distributed over the principal routes on which the traffic through the Canal is moving, the transits to December 1st may be summarized as follows:

	No. vessels	*Canal tonnage*
Coastwise, eastbound	54	320,155
Coastwise, westbound	61	282,020
U. S. Pacific coast to Europe	34	248,020
Europe to U. S. Pacific coast	8	38,318
South America to U. S. and Europe	24	166,917
U. S. and Europe to South America	15	74,644
U. S. Atlantic coast to Far East	24	148,207
Miscellaneous routings	7	19,203
Vessels without cargo	30	......
Total	257	1,297,484

LABOR.

Western Wage Controversy.

NOTHING new has been developed through the hearing now being held at Chicago with reference to the demands of Western engineers and firemen for an increase in their wages. Practically the same reasons have been presented for an increase as were employed in the case of the Eastern roads a year ago and apparently no serious consideration has been given by the employes regarding the ability of the railways to pay the advance demanded. It would appear incredible, under the circumstances, that the arbitration board could meet the engineers' and firemen's demands. It is a well known fact, that had it not been for the labor influence back of the situation and the contracts already in existence, a marked reduction in salary would have been made in the wages of the very men who are now demanding an increase. Such a development was, in reality, an economic necessity and well justified by the tremendous losses which the railways have recently suffered. The demand therefore, for an increase in salary, is a striking example of the length to which the railway labor unions intend to go.

Railway labor to-day, as compared with that in other industries, occupies a greatly preferred position, and this is no more strikingly illustrated, than in connection with the wages paid enginemen and firemen. While it is admitted that the work of these men is hazardous and of a highly responsible character, it is also true that men in other fields, occupying equally as hazardous and responsible positions, are not receiving nearly so liberal a wage. Under the circumstances, a demand for an increase of wages during a period of unprecedented railway depression, is a clear indication that the time has now arrived when those in authority must exert every effort to check a tendency which, if permitted to continue, would place an unfair and oppressive burden upon the entire industry.

James M. Sheehan, counsel for the Western railroads, in an address before the Federal Arbitration Board on January 18th, made the following striking statement:

"Governors in seven states in the union could make more money sitting in the cab of a locomotive on some of the runs on western railways than they now receive in the executive chairs of their states. Their annual salaries are smaller than the wages received by some of the locomotive engineers on western railways, who, in concert with the firemen are demanding higher pay and revised rules which would entail an added burden of $40,000,000 yearly to the roads.

"Of about 5,000 men whose wages for the entire year to June 30, 1913, will be shown, there is a maximum of $3,725.20 for passenger engineers; $3,342.30 for freight engineers; $1,752.20 for passenger firemen and $1,890.32 for freight firemen. Against these maxima, the Governors of seven states receive $3,000 or less per year, while those of seven other states receive $4,000, or only slightly above the engineers' maximum earnings.

"Actual earnings statements for all engineers and firemen for the month in which these demands were presented, show that engineers in passenger service earned actually an average of $185 for the month with a maximum actual earnings of $341.60; in the freight service the average was $170, with an actual maximum of $358.70; the firemen in passenger service earned that month an average of $115.54 with a maximum of $209.89; while in freight service their actual earnings for the month were on the average $110 with a maximum of $221.05. Other firemen in combination freight and passenger service earned even higher wages.

"A careful investigation into the increased cost of living in the West shows that prices have not advanced so fast as have the wages of engineers and firemen under the schedules awarded in 1910.

"Comparison of their wages with those of any other craft, or of any other railway employes, or of engineers and firemen in other parts of the country, show that they are receiving already a higher compensation in both rates of pay and rules."

Turning to the question of ability of the roads to meet the added cost in these latest demands of the men, Mr. Sheean pointed out that in the fact of larger mileage and growing traffic, the western roads in recent years have experienced immense losses in net revenues, income, dividends and surplus, in which situation they are now faced by demands of engineers and firemen which would add $40,000,000 to their expenses, although these men now are better paid than in any other section of the country, and their wages already have outstripped the cost of living.

"These wage demands," said Mr. Sheean, "affect some 64,000 men, on approximately 140,000 miles of railway. On the basis of the month in which they were presented, the added expense would be $3,700,000, or about 51 per cent. Applied to the total payroll of the affected companies for the year, this would mean nearly $40,000,000.

"Over 8,000 more miles were operated by the affected companies in 1914 than in 1910, yet net operating income after taxes in 1914 was $15,000,000 less than in 1910, and nearly $40,000,000 less than 1913.

"In 1914 there was declared $22,000,000 less in dividends than in 1910, and in 1913, $14,000,000 less than in 1910. In 1914 there was carried to surplus $24,000,000 less than in 1910, while the surplus in 1913 was $12,000,000 less than in 1910. In five months of the current fiscal year there has been a drop of $29,000,000 in gross revenue.

"We face this situation as to the income of the railways involved, although in three years to June 30, 1913, they spent over $660,000,000 in improvements and extensions to property, and out of this devoted over $220,000,000, or practically one-third, toward the purpose of increasing efficiency and safety and expediting train movements. It is true that heavier power and equipment have been installed, but labor-saving devices and increased wages have more than counterbalanced any added work or responsibility placed upon the men by the heavy power.

"Through the elimination of grades and curves and other improvements, the employes have been able with the larger engines, and consequently with higher pay, to haul trains at the same speed as light trains were formerly handled. With heavier power there has been constant improvement in labor-saving devices such as automatic stokers, automatic doors, coal pushers, sloping tanks, power grate shakers and automatic ash pans now operated by compressed air, which relieve the firemen of the danger of going beneath the locomotive.

"It is an evident fact that increases in wages granted in 1910 in the western concerted movement, covering specifically heavier classes of power, were more than commensurate with the added work, and schedules made then have taken care of such heavy power as has been installed by the railways since then.

"Compensation of engineers and firemen throughout the West is higher than in eastern and southern territories, although the average freight train load and average tractive power of engines in the East and South are higher than in the West."

First Annual Report of the Commissioner of Mediation and Conciliation.

WILLIAM L. CHAMBERS, commissioner of the United States Board of Mediation and Conciliation, has issued his first annual report with reference to the activities of his Board during 1913 and 1914. Mr. Chambers pointed out that while this Board was provided for in an act of Congress approved July 5, 1913, Congress had legislated twice on the same subject matter before. The first of these prior acts, namely, the one approved October 1, 1888, was repealed by an act approved June 1, 1898, while the present law, by its terms, repealed all previous acts and therefore constituted the body of federal legislation relating to the mediation, conciliation and arbitration of controversies between railroads and their employes.

After reviewing somewhat in detail, six of the more important cases which have come before the Board, Mr. Chambers in a general review of the work which has been accomplished, has the following to say:

"In all there have been 28 cases similar in character and importance to the foregoing brought to the attention of the Board during the year by one party or the other, or jointly in some instances, in each of which the controversy was of such a nature that a tie-up or suspension of train movement would have resulted except for the settlements which were reached through the services of the Board. In all of these cases, with the exception of two, strike votes had actually been taken before the services of the Board were requested. In three of the most serious cases the services of the Board were tendered, without the request of either party, resulting in amicable adjustment in two cases by mediation and the other by arbitration.

"The operations of the Board both in its mediation features and in arbitrations brought about through its advice, have directly affected every railroad east and several of the largest systems west of the Mississippi River. Perhaps three-fourths of the railroads of the country in capital and trackage have been involved in these controversies, in which the organizations representing the engineers, firemen, conductors, trainmen, switchmen, telegraphers and maintenance of way men, aggregating 124,503 employes, have been concerned, in some cases in single movements and in other cases in concerted movements.

"The administration of the law, it is believed, has demonstrated the wisdom of its enactment. Through its salutary influences, as a federal statute, it has evoked popular approval and the sympathetic co-operation of the railroad managers and the vast army of their employes, without which approval and support, the efforts of those to whom its administration has been intrusted would have been far less successful."

ORGANIZATION NOTES.

Annual Meeting of the Chamber of Commerce of the United States.—The third annual meeting of the Chamber of Commerce of the United States which is to be held in Washington on February 3rd, 4th and 5th, will no doubt develop matters of interest to every business man of the country. The main subjects for discussion at this critical business time will be the foreign trade—our merchant marine—and the general future attitude of the Administration towards business. Hon. Charles H. Hamlin, Governor of the Federal Reserve Board, will give additional facts regarding the new Reserve System and its relation to commercial development. Hon. Joseph E. Davies, Commissioner of Corporations, will give public expression to his idea of the scope and powers of the new Federal Trade Commission. Dr. Edward E. Pratt, Chief of the Bureau of Foreign and Domestic Commerce, Samuel McRoberts, Vice-President of the National City Bank of New York, and other distinguished speakers will be present.

President Wilson is to address the convention and what he will say is awaited with particular expectancy as it is anticipated his speech will definitely outline the general attitude of the present administration toward business after the passage of the tariff and business regulatory legislation. His speech will mark one of the few occasions when the President has taken an opportunity to go direct to the business men of the country and it is generally supposed he will take this opportunity for a vigorous discussion of the commercial crisis which the United States is now facing. Undoubtedly, there will be a strong exposition of the legislation enacted during his administration, with possibly a definite outline of what the President has in mind for the future.

The foreign trade situation will be dealt with at length by both the Secretary of State and the Secretary of Commerce. With the present agitation and encouragement at zenith for American business men to seek new fields, Mr. Bryan and Mr. Redfield will have messages of unusual import. There will be brought out the vital question of the attitude of the Administration in backing up American investors in foreign countries in case of difficulties. Secretary Redfield will deal with the general development of the foreign trade and his presentation will be ably supported by Dr. Edward E. Pratt, Chief of the Bureau of Foreign and Domestic Commerce, and other prominent speakers on different phases of the subject, such as Latin-American and Oriental commerce.

Discussion of the relation of the Federal Reserve act to trade expansion will be led by Samuel McRoberts, Vice-President of the National City Bank of New York. Following this will come a report of the Foreign Trade Committee of the Chamber of Commerce of the United States, in favor of permitting a greater degree of combination for development of foreign trade.

The biggest question affecting business before the present session of Congress—an American merchant marine—will be dealt with by Secretary McAdoo. He will voice the administration sentiment and another speaker will be heard on the other side. Supplementary to the discussion will be the report of the Chamber of Commerce Committee on Merchant Marine.

Interest will center on new business legislation. Charles H. Hamlin, Governor of the Federal Reserve Board will give additional interpretation to the new Reserve System and its relation to commercial development. Joseph E. Davies, Commissioner of Corporations, who has an excellent idea of the scope and possibilities of the Federal Trade Commission, will explain the act which will soon become so vital a part of the nation's business.

January Meeting of Canadian Railway Club.—At the January meeting of the Canadian Railway Club, held on the 12th inst., Mr. J. A. Glassford, freight inspector on the Canadian Pacific Railway, had the following to say with regard to the methods which should be employed to prevent loss and damage to freight.

One of the great drawbacks to the handling of L. C. L. freight experienced by the common carriers all over this continent is that the majority of the labor engaged in this business is foreign, or of foreign extraction, and a large percentage of it speaks a foreign language. My own judgment is that the greatest drawback in the proper supervision of and educating of freight handlers lies in this one fact that when a foreman instructs a man to do a certain thing and he is forced so frequently to talk to men who do not understand the English language and do not speak it, he never knows to his entire satisfaction that the instructions are fully and properly understood. I might elaborate further on this to say that while we have this class of labor handling our freight, it is almost impossible for us to expect him to know (due to the ignorance of the English language on the part of the foreign freight handler) what commodities he is handling from time to time. In other words, if every man knew exactly what the packages contained that he was handling on or off freight house trucks, or on or off wagons, we believe that the freight would be handled with a great deal more care, but due to the ignorance of the help on this subject, the best that can be expected is about the average of fair usage.

C. J. Forrester, superintendent of car department's office of the Grand Trunk Railway, spoke on the same subject from the car department standpoint and asserted that cars should be thoroughly inspected before loading, under the three following classifications:

Classification "A"	Classification "B"	Classification "C"
Leaky roof	Leaky roof	Leaky roof
Loose siding	Loose siding	Loose siding
Loose roof boards	Loose roof boards	Loose roof boards
Shifted roof sheets	Shifted roof sheets	Shifted roof sheets
Broken door posts	Broken door stops	Broken door stops
Leaky doors, tops and sides	Leaky doors, tops and sides	Leaky doors, tops and sides
Broken end posts	Broken end posts	Broken end posts
Broken or loose door posts	Broken or loose door posts	Broken or loose door posts
Protruding nails in floor and lining	Holes in floor and around centre plates and draft bolts	Protruding nails in floor and lining

METHOD OF INSPECTION BEFORE LOADING.

(A)* Inspection to be made at point of loading whenever practicable.

(B) At point of distribution from which car is forwarded to loading station and again by agent.

(C) Cars received and unloaded at station where no inspectors are located should be inspected by agent.

Aside from MCB's inspection of car, including roof, running boards, air brakes, safety appliance, and running gear, as well as the external inspection of sides, ends, doors, ventilators and windows, an internal inspection must be made of the roof and siding, with doors, ventilators and windows in closed position.

1. Search for light, indicating openings and cracks which might produce leaks.
2. Search for loose, damaged and broken boards, loose knots, knot holes, bad joints, etc.
3. Search for all nails and bolts extending above surface of floor and lining, and nails protruding through roofing.
4. Search for water stains, indicating cracks and air spaces.
5. Search for cracks sufficient to admit storm water beating through openings, also for openings and bad joints around windows and doors.
6. Examine for metal sheets out of position along edge of surcarlines or down from edge of ridge pole.
7. Search for small holes in metal roofs due to rust or small openings in roof from other causes.
8. Doors must open and close properly.

The floors should be clean, dry and free from defects sufficient to admit moisture, and any fouling by previous shipments, such as fertilizer, oils, and other freights which would damage more perishable commodities. If the centre pin is uncovered it might be necessary to cover it with a piece of board, depending entirely upon the character of freight to be loaded.

Inspect closely for defect in framing which might by reason of their weakness allow the sheathing to be readily broken or damaged. Certificate according to classification should be attached to car.

Bi-monthly Business Meeting of Pittsburgh Traffic Club.—The bi-monthly dinner and business meeting of the Traffic Club of Pittsburgh was held in the Hotel Schenley, Monday, December 14th. After a short business meeting, President E. F. Lalk introduced the speaker of the evening, Dr. John A. Brashear, President of the American Society of Mechanical Engineers. About 150 members were present and thoroughly enjoyed Dr. Brashear's address "Science in its relation to the common things of everyday life." The principal action taken in the business meeting was the appointment of E. B. Mitchell, D.F.S., Pennsylvania System as Chairman of the Annual Dinner Committee, succeeding George H. Kerr and the election of Almer H. Orr, agent, Atlantic Coast Despatch to the Board of Governors succeeding George H. Kerr. Mr. Kerr who until recently was Commercial Agent of the Southern Railway, Pittsburgh, was promoted to another field.

Foreign Trade Convention.—Between two and three thousand commercial and industrial organizations, firms and individuals engaged in foreign trade were represented at the Second National Foreign Trade Convention, held in St. Louis on January 21st and 22nd. In calling the Convention, James A. Farrell, president of the United States Steel Corporation and chairman of the National Foreign Trade Council, stated—

> "The European war has demonstrated that our foreign trade, while small in comparison with domestic business, is a vital element in our domestic prosperity and, therefore, of immediate concern to every citizen. Individual action, however strong, cannot do justice to the present opportunities for its expansion. Co-ordinated effort of the entire nation—manufacturers, merchants, bankers, carriers and all others—working together in harmony with a well defined national policy will alone enable us to develop the possibilities now before us."

John Bassett Moore, formerly counsellor of the State Department, spoke on "Problems Arising in War and Commerce," and discussed the effect of the war on United States trade. The convention was opened by the Honorable W. C. Redfield, Secretary of Commerce.

Instead of numerous speeches on the general aspects of foreign trade, the sessions were divided between authoritative papers by leaders in the business world and descriptive discussions by delegates from all sections of the country. Ways and means whereby the smaller manufacturer and merchant may engage in foreign trade, had an important place in the program.

LEGAL.

Important Decisions in Meat Inspection Laws.—The Supreme Court of the United States has recently handed down decisions of great importance in the enforcement of the Meat Inspection and Live Stock Quarantine Laws. The meat inspection law provides for the inspection of meat and meat food products before they enter interstate commerce. Among the provisions of this Act is one which prohibits anyone from unlawfully destroying, or altering marks, or other identification devices which are required to be placed upon the meat or the containers.

Some parties in Kansas City, Kansas, broke a Government seal on a car of meat and the lower court held that the Meat Inspection Act related alone to those engaged in the business of preparing meats for transportation and the carrying of such meats in interstate transportation. The Supreme Court reversed this decision and held, in substance, that the provision regarding identification devices applies to every person, firm, or corporation, or officer, agent, or employe thereof, no matter whether engaged in the interstate transportation of the meats or not.

The Live Stock Quarantine Law prohibits the interstate movement of live stock from any territory quarantined by the Secretary of Agriculture, except under certain conditions prescribed by him. The District Court at Kansas City, Missouri, in the case of United States v. Nixon, et al, construed the Act not to apply to receivers of railroad companies, for the reason that they were not mentioned in the statute. The Supreme Court reversed this decision and held that the amendment to the original Act was intended to make the remedy as broad as the evil which was sought to be cured and that the law, as amended, applied to any common carrier engaged in the interstate transportation of live stock.

To Contest the Reduced Coal Rate Order of Pennsylvania State Commission.—The coal roads of Pennsylvania have made an appeal to the Court of Common Pleas of Dauphin County from the decision of the Public Service Commission of Pennsylvania in connection with the reduction ordered in the anthracite rates to Philadelphia.

(1) The decision in question orders not only a reduction in the rates on anthracite coal used for domestic purposes, but also a reduction in the rates on sizes of coal not so used, which rates were not embraced in the complaints filed with the Commission and the traffic moved under which is approximately fifty per cent of the total anthracite tonnage to the City of Philadelphia.

(2) The application to the freight rates on all other commodities of the principle applied by the Commission in determining the Philadelphia rate on anthracite coal would produce commercial chaos and reduce the net revenues of the carriers by an amount far greater than the gain under the decision of the Interstate Commerce Commission in the five per cent rate case and the recent adjustment in the passenger rates.

(3) The reductions in the rates ordered will force the reduction of a large number of other anthracite rates, both state and interstate, to points other than Philadelphia.

(4) The effect of the reduction will be to diminish the net revenues of the Pennsylvania Railroad Company by approximately $1,500,000 a year; the net revenues of the Philadelphia & Reading Railway Company by approximately $2,000,000 and of the other companies by several hundred thousand dollars per annum.

The importance to the State of Pennsylvania and to the City of Philadelphia of adequately conserving the revenues of the carriers' demands that immediate action shall be taken to protect their revenues from such a wide-spread destruction as is involved under this order of the Pennsylvania Public Service Commission.

LEGISLATION.

Farmers Oppose Full Crew Laws.—In an interview to the press, Peter Radford, National Lecturer of the Farmers' Educational & Co-Operative Union of America terms the so-called "Full Crew" laws and kindred legislation as a useless tax on agriculture. Mr. Radford takes the position that the expenses of all lines of industry are paid by the farmer and that when the cost of operating any line of business is unnecessarily increased, it works a hardship on the farmers of the nation.

GENERAL NEWS NOTES.

Esprit de Corps of Southern Railway.—How the executive officers and the employes of the Southern Railway "pull together" for the common good of the company, is strikingly evidenced by a telegram sent to the clerical staff of the Accounting Department by President Harrison on December 14th, and their answer thereto. This correspondence was made the basis of the following statement which was brought to the attention of each individual of the clerical force and was in fact, prepared by a committee of this force of which M. E. Martin was the chairman.

SOUTHERN RAILWAY COMPANY.

January 2, 1915.

To the Clerical Staff of the Accounting Department:

December 24th, President Harrison sent the following message to each officer and employe of the Company:

> "I send you and your families one and all a cordial Christmas greeting and my sincere thanks for your loyal service to the Company and the support you have given me personally during the past year. I am proud to be associated with you."

This unusual but sincere recognition of our services and efforts called for a fitting acknowledgement, to make which you selected a committee charged with the duty of preparing and presenting an acknowledgement and response for the Accounting Department forces.

The following note was agreed upon:

> "We, the clerical forces of the Accounting Department, have construed the Christmas greeting contained in your message of December 24th as a personal and an individual matter, as well as an expression of peace and good will from our chief executive. Its motive and its tone appeal to us individually and collectively and for it we thank you.
>
> "If our aid, through efficient and co-operative service, will insure your success, it would be idle to wish, for the interests you represent, a prosperous New Year.
>
> "Personally, we wish you good health and happiness. Officially, we feel that success is assured.
>
> "As an evidence of the foregoing we, individually and collectively, ask your acceptance of this testimonial and of our appreciation and good will."

It was appropriately engrossed and to it were attached sheets upon which appeared the autograph signature of each member of the clerical force of the Accounting Department that could be obtained at the time, opposite each of which was shown the period of his or her service with the Company. The remaining signatures will be obtained later and attached to the document.

The document was personally submitted to Mr. Harrison by your Committee. Its reception by him was as gracious as was the spirit which prompted his message. He bade us convey to you his high appreciation of your act in this matter, and also of our services, and to tell you that he had a warm place in his heart for each and every one of us.

From the tone of his message and the feeling and gracious manner in which our acknowledgement was received by him, we feel assured that we are units in a great organization manned by officers capable, appreciative and sympathetic, who have, at all times, our best interests at heart.

Respectfully submitted by the Committee,
M. E. MARTIN, Chairman.

New Year's Greeting for Pennsylvania Railroad Employes.—General Manager S. C. Long sent the following New Year's Greeting to all employes of the Pennsylvania Railroad East of Pittsburgh:

"On behalf of the management, and on my personal account, I desire to extend New Year's Greetings to the employes of the Pennsylvania Railroad and their families.

"Many of us have spent our lives in the service of the railroad and we feel great pride in what this railroad stands for. Each of us, too, has a right to take to himself a part of the credit for what the Pennsylvania Railroad is, and all of us are proud to be associated with such a splendid army of fellow officers and employes.

"But to produce a thing so big and fine involves many sacrifices. The very bigness of the organization deprives the general officers of the privilege of knowing personally many of the rank and file. I am sorry, therefore, that it is not possible for me to extend this greeting in person to you and to each member of your family. I wish I could make you feel that your faithful work is appreciated; for how helpless our great railroad would be but for the loyal service and devotion of its men.

"I wish you all the joy that should be yours from a consciousness of duty well performed. We are all working together, not merely for the prosperity of a great corporation, which means better times for all employes, but to perform our part in promoting the progress and welfare of all the people and what is theirs.

"It has been a trying year for the Pennsylvania Railroad and for all railroads. It has been a very trying period for every one. We regret that our own ranks are depleted, but we are not earning enough to fill them. It is a time to stand together, to pull together—for peace, for happiness and for prosperity.

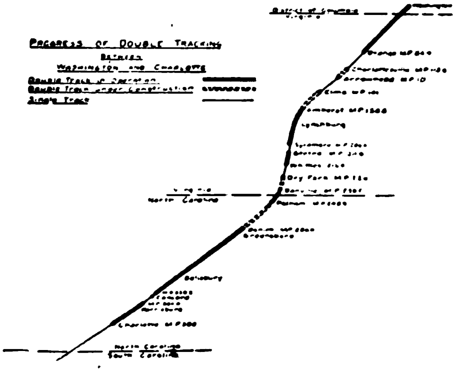
"May the New Year bring good cheer, good will and clearing skies for us all."

CONSTRUCTION.

Double Tracking the Southern Railway Between Washington and Charlotte, N. C.—Herewith is presented a sketch which will show graphically the progress Southern Railway is making in double tracking its Washington-Atlanta Line, particularly that part of the line lying between Washington and Charlotte, N. C.

Double track is now in service between Washington and Orange, Va., 84.9 miles; Amherst and Sycamore, Va., 47.6 miles; Gretna and Whittles, Va., 4.7 miles; Danville, Va., and Pelham, N. C., 9.8 miles; Denim and Concord, N. C., 73.9 miles; Harrisburg and Charlotte, 15.4 miles; Gainesville and Sewanee, Ga., 22.7 miles, and Duluth and Atlanta, 25.5 miles; a total of 284.5 miles.

Of this, 236.3 miles is in service between Washington and Charlotte and double track construction is now under way between Charlottesville and Arrowhead, Va., 7.4 miles; Elma and Amherst, Va., 17.8 miles; Dry Fork and Danville, Va., 12.5 miles and Pelham and Denim, N. C., 36 miles, a total of 73.7 miles.

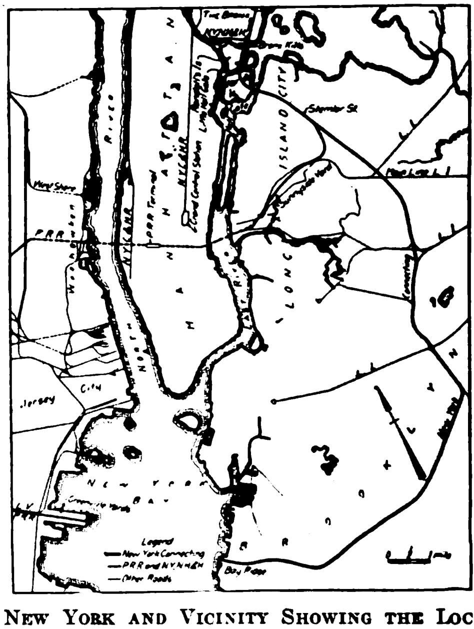


PROGRESS OF DOUBLE TRACK WORK ON WASHINGTON-ATLANTA LINE.

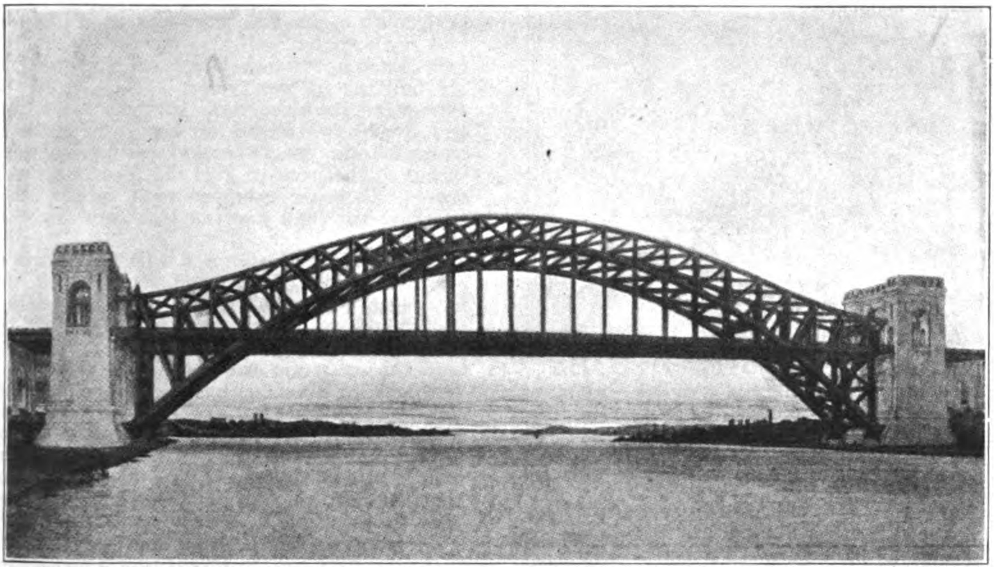
It is expected that this track will be placed in service during the summer of 1915 and there then will be 310 miles of double track in service of the 380 miles between Washington and Charlotte, leaving only seventy miles of single track divided into five stretches, the longest of which will be that between Orange and Charlottesville, Va., 28.7 miles the others being between Arrowhead and Elma, Va., 20 miles; Sycamore and Gretna, Va., 5.2 miles; Whittles and Dry Fork, Va., 9.7 miles and Concord and Harrisburg, N. C., 6.4 miles.

The New York Connecting Railroad.

RAPID progress is being made in the construction of the New York Connecting Railroad which will provide a direct connection between the Pennsylvania and New Haven systems. The first section of the new line,



NEW YORK AND VICINITY SHOWING THE LOCATION OF THE NEW YORK CONNECTING RAILROAD.

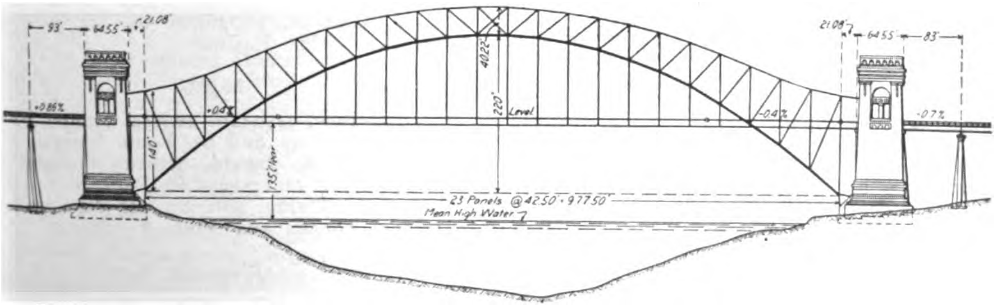


The Main Span of the Pennsylvania Rail-road's New East River Bridge at Hell Gate, New York. When Completed this will Constitute the Largest Four Track Railroad Bridge in the World, and will be the Connecting Link Between New England and the West and South. The Bridge and its Approaches will be Three Miles Long.

to be used exclusively for passenger traffic, is nearing completion, and through trains will soon be operated over it between Boston and Chicago, Cincinnati, New Orleans, Washington and Southern and Atlantic points.

The accompanying map shows its location. On account of the numerous heavy structures required to span the East River, Little Hell Gate and the Bronx Kill, cost of its construction will amount to approximately $30,000,000. As the new line is about ten miles in length, this is at the rate of $3,000,000 per mile.

The Hell Gate arch bridge, which is herewith illustrated, is the most important of the bridge structures and when completed will constitute the largest four-track railroad bridge in the world. Including approaches, the bridge will be more than three miles in length, while the main span will be 1,000 feet long and 240 feet above the water level. The towers are 125 feet by 140 feet in area and are of hollow concrete construction, faced with Maine granite, above the ground and extending to a height of about 220 feet. The roadway is carried through the arches of these abutment towers. In addition to their architectural value the weight of these towers serves to decrease the size of foundation necessary and increase the stability of the arch structure. The two arches are spaced 60 feet, center to center, and each consists of two chords 140 feet apart at the ends, and about 40 feet at the crown. The rise in the lower chord is 220 feet. The roadway level is between the two chords at the end post, crossing the lower chord three panels out from the end, and being suspended more than 150 feet below the crown of the arch in the middle of the span. The arches are two-hinged, although they will be erected as three-hinged, and maintained in that way until all dead load has been placed. The clearance above mean high water is 135 feet. On account of the enormous dead load the chord members are never in tension, and the sections required are unusually heavy. The lower chord is a box section with a middle diaphragm having a width of 6 ft. 6 in., and a maximum depth at the lower end of 10 ft. 6 in. The upper chord is an inverted U section, and is of course considerably lighter. Continuous ballasted tracks are carried across the structure on



Elevation of the Hell Gate Arch Bridge.

East Abutment of the Hell Gate Arch Bridge Partially Completed.

concrete slabs, this construction being standard over the entire elevated portion of the line.

The tower on the Long Island side is founded on rock at a depth of about 20 feet, the foundation being placed in open cut. The westerly tower, however, is founded on rock at depths varying from 58 feet to 120 feet below the ground surface.

EQUIPMENT.

Rail Requirements of Pennsylvania Railroad.—Official announcement has been made by the Pennsylvania Railroad Company that the steel rail requirements for its Lines East and West of Pittsburgh for the current year will amount to 170,000 tons, and that bids are now being requested and orders will be placed for early delivery for 150,000 tons of 100-pound section, in accordance with revised specifications of 1915, the balance of 20,000 tons to be ordered later. The total quantity of steel rails ordered last year was 132,432 tons.

PANAMA FAIR NOTES.

Transportation Exhibit Developments.— Contracts have been let for the beautiful panoramas which will be installed in the Palace of Transportation to illustrate the topography of various scenic highways already built or being constructed in the United States. The one of the Lincoln Highway reaching from New York to San Francisco is nearly completed and shows faithfully the contour of the country along the route on a scale of approximately ten miles to the foot. All points of interest are clearly shown and all towns together with their names. The Trail of the Sunset from Chicago to San Diego has been commenced. The newest one is showing the Washington Highway, which is being projected to span the coast line from San Diego to Vancouver but will also include the coast line from Panama to San Diego. These panoramas are built about twenty feet above the floor and extend out from the wall four feet at the bottom and slope upward, the lower portion of the panorama being in bas relief and melting into painted scenes at the back to give the idea of great distance. They are equipped with special lighting effects which will give daylight and night time effects.

The State of Washington will have a comprehensive exhibit of its good roads, work which has been accomplished the past few years, in the Palace of Transportation. This has been decided following the visit of I. M. Howell, secretary of state the past few days. J. W. Williams, of Spokane, has been appointed a special representative to get this exhibit together at the request of Richard Seelye Jones, Exposition Commissioner for Washington. Numerous road maps will be shown and literature regarding the vast amount of work which has been done by the State.

The contract has been let for the construction of the quarters for the Exposition Transportation Club, which has been organized by Blythe Henderson, chief of the Palace of Transportation for the benefit of the exhibitors in his building. Each exhibitor will contribute to the fitting up and upkeep of the club and the quarters will be open to all members and their guests throughout the Exposition period. The quarters will be situated on the mezzanine floor in the southern portion of the building and will be 2500 square feet in extent. All conveniences will be installed.

Electric Chairs to Take Visitors Around Grounds.—Electriquetting is to be the favorite means of seeing the sights at the Panama-Pacific International Exposition. The old push chairs of other expositions and the Atlantic City boardwalk, have been placed in the discard by the electriquetting at San Francisco. These are electrically driven wicker chairs that can be operated by women and children by pressure of the foot. They have room for two persons and are equipped with emergency brakes. The first of the 400 have arrived on the exposition grounds.

RESIGNATIONS.

Executive.

D. P. Bennett, vice-president, National Railways of Mexico.

J. W. Leonard, assistant to vice-president, Canadian Pacific Railway.

Legal.

J. D. DeBow, assistant general counsel, Nashville, Chattanooga and St. Louis Railway.

Francis T. A. Junkin, general attorney, Atchison, Topeka and Santa Fe Railroad.

Henry L. Waldo, solicitor for New Mexico, Atchison, Topeka and Santa Fe Railroad.

Financial.

Harry Bortin, assistant to general secretary, Presidents' Conference Committee on Valuation.

Engineering and Mechanical.

W. J. Calvin, roadmaster, Northern Pacific Railroad.

W. T. Cousley, master car builder, San Antonio and Aransas Pass Railway.

C. H. Seabrook, superintendent of machinery, International and Great Northern Railroad.

S. S. Stiffey, superintendent of motive power, Toledo and Ohio Central and the Zanesville and Western Railroads.

Frank W. Taylor, master mechanic, Illinois Central Railroad.

Operation.

J. M. Baths, superintendent, Southern Division, Chicago, Indianapolis and Louisville Railroad.

William L. Bisbee, superintendent, Houston & Texas Central Railroad.

W. B. Harrison, assistant division superintendent, Chicago Great Western Railroad.

Henry Miller, general manager for receiver, Wabash Railroad.

Traffic.

H. C. Davis, general agent, Lehigh Valley Railroad.

J. C. Ferguson, general agent, Union Pacific Railroad.

A. A. Heard, general passenger agent, Delaware and Hudson Company.

J. K. Hudson, general freight agent, Detroit and Mackinac Railway.

Myron Wood, general agent, Pittsburgh and Lake Erie Railroad.

Miscellaneous.

Ross D. Rynder, chief examiner, Interstate Commerce Commission.

ELECTIONS AND APPOINTMENTS.

Executive.

J. J. Bernet, resident vice-president, New York Central Railroad. Headquarters, Chicago, Ill.

H. K. Brooks, vice-president and manager in charge of finances, American Express Company.

P. E. Crowley, assistant vice-president, operating department, New York Central Railroad. Headquarters, New York.

D. D. Curran, president, New Orleans Railway & Light Company. Headquarters, New Orleans, La.

M. Dailey, receiver, Muscatine, North and South Railway. Headquarters, Muscatine, Iowa.

T. F. Darden, assistant to the president, Atlantic Coast Line. Headquarters, Wilmington, N. C.

Grant Hall, vice-president and general manager, Canadian Pacific Railway. Headquarters, Winnipeg, Man.

J. M. Hall, president, Midland Continental Railroad. Headquarters, Chicago, Ill.

A. T. Hardin, vice-president, New York Central Railroad. Headquarters, New York.

Charles R. Hudson, vice-president, in charge of operation, National Railways of Mexico. Headquarters, Mexico City, Mexico.

A. W. Lefeber, vice-president, Midland Valley Railroad. Headquarters, Muscatine, Okla.

James Manson, assistant to the vice-president, Canadian Pacific Railway Company. Headquarters, Montreal, Que.

Charles D. Marvin, president, Denver, Boulder and Western Railroad. Headquarters, Boulder, Colo.

A. W. Newton, assistant to president, Chicago, Burlington and Quincy Railroad. Headquarters, Chicago, Ill.

Alberto J. Pani, vice-president, National Railways of Mexico. Headquarters, Mexico City, Mex.

C. E. Stockdill, assistant to the vice-president and general manager, Canadian Pacific Railroad. Headquarters, Montreal, Que.

H. R. Taylor, member of the board, Delaware, Lackawanna and Western Railroad.

Legal.

Thomas R. Beman, general attorney, Rock Island System. Headquarters, Chicago, Ill.

S. T. Bledsoe, assistant general solicitor, Atchison, Topeka and Santa Fe Railroad. Headquarters, Chicago, Ill.

W. P. Briggs, general attorney, Pacific & Idaho Northern Railway. Headquarters, New Meadows, Idaho.

H. D. Davis, contract attorney, Missouri Pacific and the St. Louis, Iron Mountain and Southern Railway. Headquarters, St. Louis, Mo.

Robert Dunlap, western solicitor, Atchison, Topeka and Santa Fe Railroad. Headquarters, Chicago, Ill.

A. B. Enoch, assistant general attorney, in charge of litigation in Illinois, Rock Island Lines.

Wallace T. Hughes, assistant general attorney, Rock Island Lines. Headquarters, Chicago, Illinois.

Troy Pace, general attorney, Missouri Pacific Railway. Headquarters, Little Rock, Ark.

W. C. Reid, solicitor, for New Mexico, Atchison, Topeka and Santa Fe Railroad. Headquarters, Albuquerque, N. M.

Financial.

C. M. Williams, treasurer, Denver, Boulder & Western Railroad. Headquarters, Boulder, Colo.

Accounting.

A. P. Cassile, auditor, Pascagoula-Moss Point Northern Railroad. Headquarters, Moss Point, Miss.

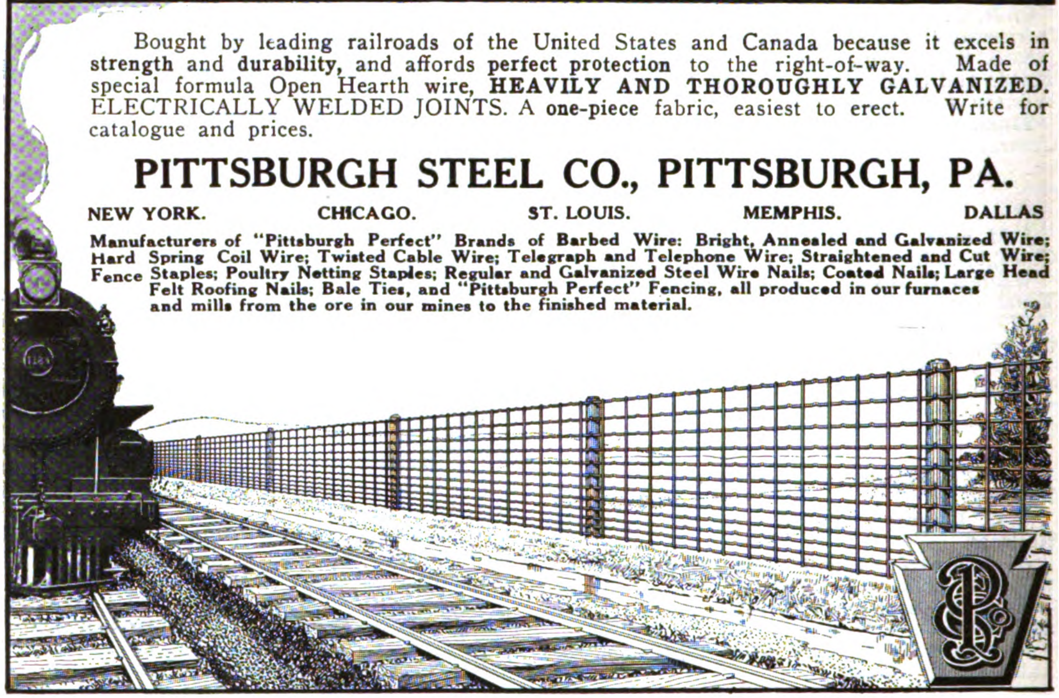
Engineering and Mechanical.

E. T. Ambach, assistant superintendent of telegraph and signals, Baltimore and Ohio Southwestern and Cincinnati, Hamilton and Dayton Railroads. Headquarters, Cincinnati, Ohio.

N. M. Barker, master mechanic, Copper Range Railroad. Headquarters, Houghton, Mich.

Norman Bell, master mechanic, Minnesota and Iowa Divisions, Illinois Central Railroad. Headquarters, Waterloo, Iowa.

"Pittsburgh Perfect" Railroad Fencing



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Railway World

VOLUME LIX ESTABLISHED 1856 NUMBER 2

A MONTHLY JOURNAL (successor to Railway World, a weekly publication) designed to present an accurate and comprehensive review of current events pertaining to Transportation, Commerce and Finance and to afford a medium for the development of a clearer understanding of the mutuality of interest which exists between those who employ and those who operate the railways.

Publication Office: 612 Chestnut Street, Philadelphia, Pa.

NEW YORK OFFICE.
206-7 Hudson Building, 82 Broadway.

PITTSBURGH OFFICE.
504 Germania Savings Bank Building.

TELEPHONE NUMBERS.
Philadelphia .... Walnut 228
New York .... Broad 6889

Terms: $3.00 per Annum in Advance
Foreign Subscriptions: $3.50 per Annum in Advance
Single Copies: 25 Cents
Advertising Rates furnished upon application

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EDWARD G. WARD . . . . President and Editor.
ALFRED EBERL . . . . . Secretary.

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DIVIDEND NOTICE.

Philadelphia Electric Company, 419 Market Street, Camden, N. J., Feb. 11, 1915. The Board of Directors have this day declared a quarterly dividend of one and three-quarters (1¾) per cent. (being 39,375 cents a share) upon the paid in capital of the Company, payable Mar. 15, 1915, to stockholders of record Feb. 20, 1915. H. C. LUCAS, Treas.

ANNUAL MEETING NOTICE.

UNITED STATES RUBBER COMPANY

New Brunswick, N. J., Feb. 5th, 1915.

Notice is hereby given that the Twenty-third Annual Meeting of the Stockholders of the United States Rubber Company will be held at the principal office of the Company, in the City of New Brunswick, New Jersey, on Tuesday, March 16th, 1915, at 12 o'clock noon, for the election of Directors and for the transaction of any and all business that may properly come before the meeting, including considering and voting upon the approval and ratification of all purchases, contracts, acts, proceedings, elections and appointments by the Board of Directors or the Executive Committee since the Twenty-second Annual Meeting of the Stockholders of the Company on March 17th, 1914, and of all mattrs referred to in the Twenty-third Annual Report to Stockholders, which will be sent to Stockholders before the meeting, and in the proceedings of the Board of Directors and the Executive Committee which, until the meeting, will be open to examination by Stockholders of record during business hours at the New York office of the Company, 1790 Broadway.

The Transfer Books will not be closed, but the New Jersey Corporation Law will not allow to be voted any share of stock which shall have been transferred after February 24th, 1915.

By order of the Board of Directors.

SAMUEL NORRIS, Secretary.

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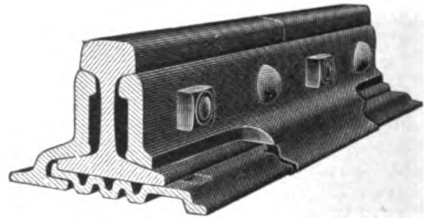

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Railway World

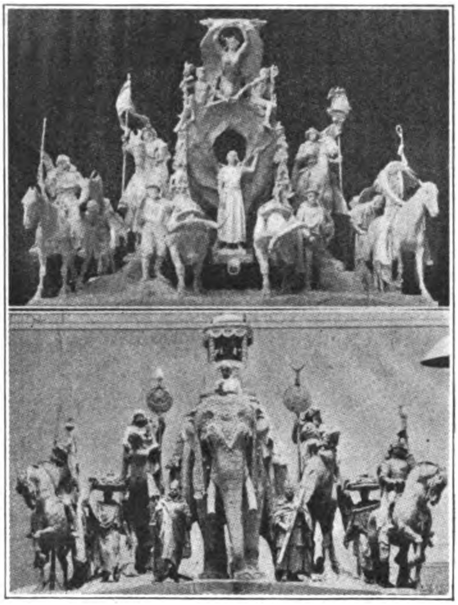
VOL. LIX. FEBRUARY, 1915 No. 2

Important Developments in the Transportation Field

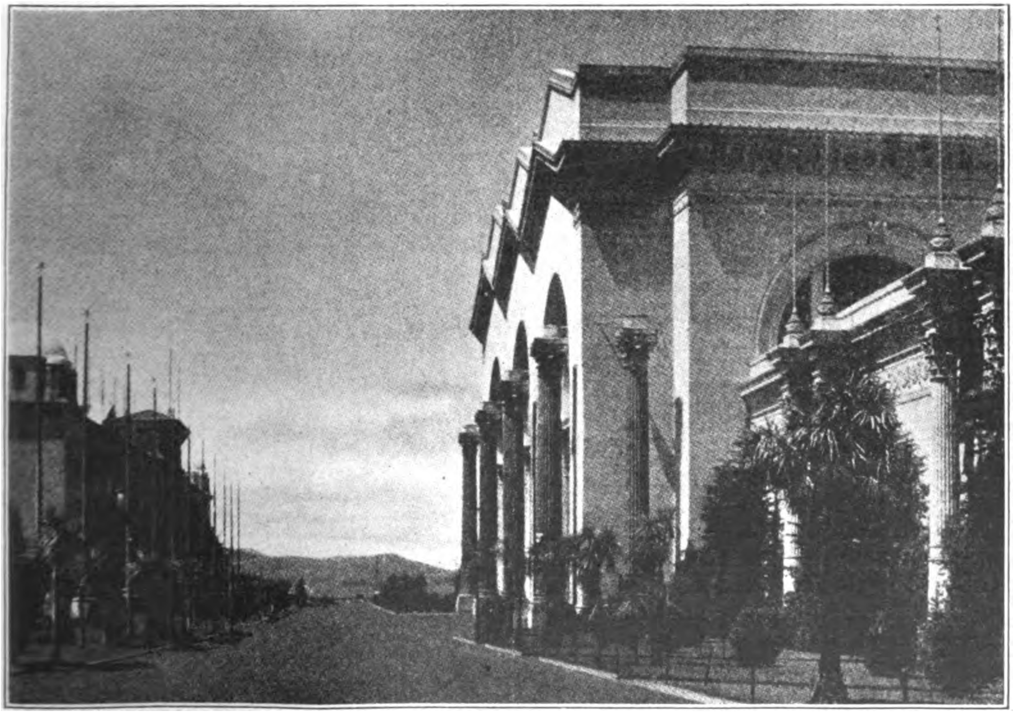
OPENING OF THE PANAMA-PACIFIC INTERNATIONAL EXPOSITION

On February 20th the the doors of the Panama-Pacific International Exposition at San Francisco, were thrown open to the public and, for the first time in the history of such affairs, the big show began on schedule time. Not only does this latest and greatest world's fair set a new record both as to size and character and diversity of exhibits, but the people of California are to be heartily congratulated upon overcoming what at one time appeared to be insurmountable difficulties; and, through remarkable courage, enterprise and ability to have developed an exposition which must, for many years, stand as the greatest single achievement of modern artistic and industrial progress.

It was in April, 1910, that a mass meeting of the citizens of San Francisco took the first step in the organization of the Exposition by raising a sum of $7,500,000 through public subscription. This sum was later increased to $20,000,000, by contributions re-



Groups which Surmount Triumphal Pillars at the Panama-Pacific International Exposition. The First Represents the Nations of the West and the Second, the Nations of the East.



Manufacturers' Building at the Panama-Pacific International Exposition.

Tower of Jewels, Panama-Pacific International Exposition.

ceived from other parts of the State. Actual construction work began October, 1911, and President Taft issued the official proclamation of the celebration, inviting all nations to join therein, on February 2, 1912.

The railroads of the country have joined most heartily in the effort to make the affair a tremendous success. They have not only issued thousands of expensive and artistic folders setting forth in detail the attractions of the big Exposition, but by making liberal appropriations for exhibits in the Palace of Transportation and in other parts of the grounds, they have played no unimportant part in providing some of the most novel, attractive and interesting exhibits.

Undoubtedly 1915 will witness the smashing of all records for transcontinental travel. The railways have made specially attractive rates to and from the Exposition and have spared no expense in providing and advertising attractive tours. Various privileges will be permitted by which travelers may journey to the Fair by one route and return by another, while in many instances, side trips will be permitted to view the wonders of our great Western country, including such places as Yellowstone Park and Yosemite Valley.

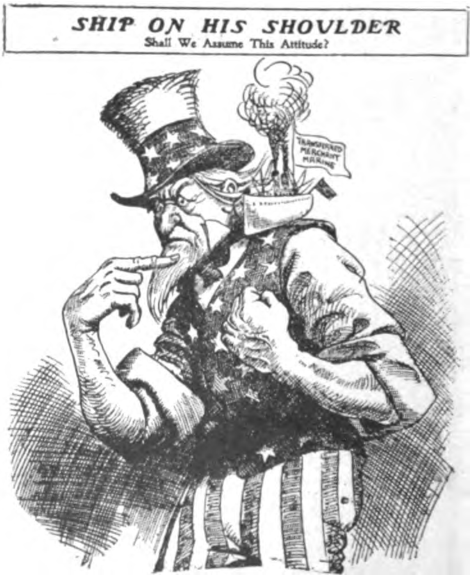
Terminal facilities in and around San Francisco have been placed in condition to handle enormous crowds and every facility has been provided both for the comfort and happiness of the traveler. It is confidently anticipated that California will witness a vast gathering of people from all quarters of the globe. While the European war will undoubtedly badly affect the attendance from that particular section, it is nevertheless predicted that the total attendance will far exceed the records of any similar exposition.

A DANGEROUS DRIFT

Undoubtedly the most dangerous tendency shown by the present Administration is its decided drift toward paternalism. Notwithstanding the fact that the business men of the country are in open arms against many of its measures, a constant effort is being made to extend its regulative authority over all branches of industry and, in fact, to become an actual competitor in some fields of private endeavor.

Unfortunately it is displaying that intolerant attitude which often accompanies the temporary power of a minority administration, and its apparent disregard of the desires and rights of great numbers of our citizens, is a cause for the gravest anxiety.

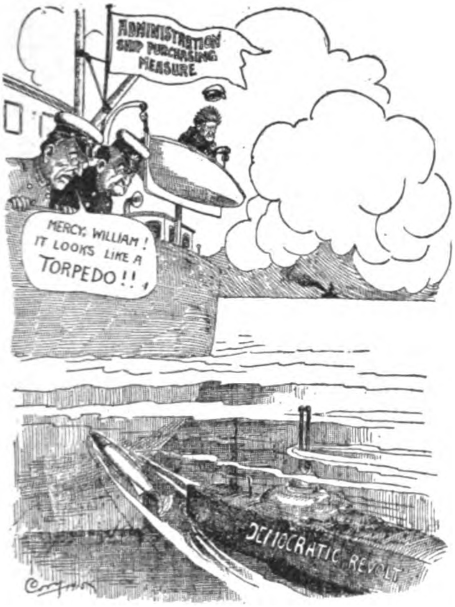
Not satisfied with the far-reaching experiments which are to be made with the country's business in the guise of the new anti-trust laws, it is now reaching out for Government ownership and operation of



SHIP ON HIS SHOULDER
Shall We Assume This Attitude?

—From the *Chicago Herald.*

TORPEDOED?


ADMINISTRATION SHIP PURCHASING MEASURE
MERCY, WILLIAM! IT LOOKS LIKE A TORPEDO!!
DEMOCRATIC REVOLT

—From the *Chicago Herald.*

merchant vessels in the foreign trade of the nation. No more unwise or uneconomic experiment could be tried at the present time. Not only is it fraught with great danger in connection with the preservation of neutrality between the United States and the warring European nations, but as private enterprise has failed to develop a service of this kind on any basis which would insure a fair return on the investment, it is a foregone conclusion that a similar venture by the Government, with its wasteful and unbusinesslike methods, would place an additional and enormous tax burden upon the people for which there would be no justification.

The real need of the hour with regard to our foreign trade is not paternalistic legislation, contrary to all precedent and to the traditions of the American nation, but rather a radical revision of those sections of the navigation laws which place unfair restrictions on American ships and ship owners and thus greatly and unduly increase the cost of operation.

A memorial recently sent by the Philadelphia Bourse to the members of Congress ably sets forth the objections to the bill under discussion and suggests how the present situation may be remedied. This organization is composed of over 2,500 business men, firms and corporations of the city of Philadelphia and has for its object the improvement of the commercial interests of the city, state and nation. The memorial follows:

To the Honorable, The Senate and House of Representatives in Congress Assembled:

This memorial of the Philadelphia Bourse respectfully represents:

WHEREAS, Section 4132 of the Revised Statutes of the United States, as amended by the act officially designated the "Panama Canal Act," provides for the admission to registry as vessels of the U. S., foreign built "sea-going vessels, whether steam or sail, which have been certified by the Steamboat Inspection Service * * * * not more than five years old at the time of application for registry * * * * for trade with foreign countries * * * the Philippine Islands, etc.," with certain restrictions as to the citizenship of the owners or managers of such vessels.

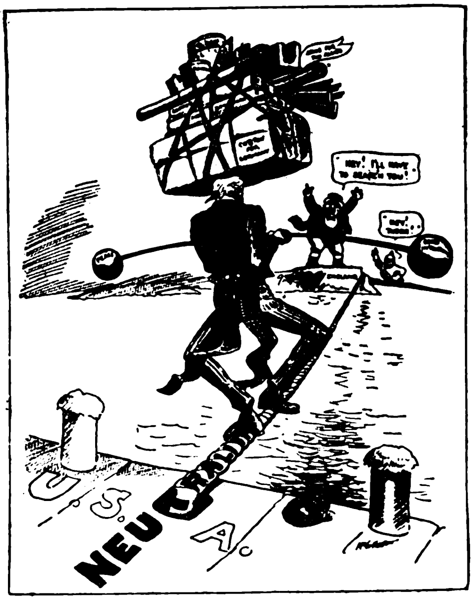
AND WHEREAS, by H. R. Bill 18202, 63d Congress, approved August 18, 1914, the restriction contained in the "Panama Canal Act" reading "not more than five years old at the time they apply for registry" was repealed, and the President of the United States granted authority to suspend the provisions of law requiring inspection and measurement by officers of the United States of foreign built vessels admitted to American registry.

AND WHEREAS, under the terms of the legislation above quoted, American citizens desiring to engage in the operation of vessels in the foreign trade are free to purchase ships in the cheapest markets of the world, and obtain American registry for such ships.

AND WHEREAS, the failure of American citizens to take advantage of the opportunities afforded by the legislation hereinbefore referred to, is conclusive proof that ships registered under the American flag cannot be profitably operated in the foreign trade.

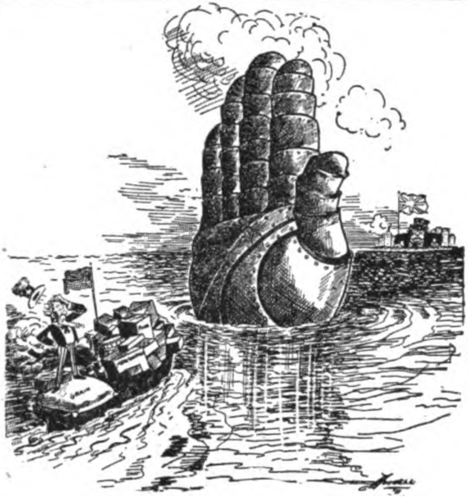
AND WHEREAS, before a merchant marine can

Careful Navigation Required to Avoid Trouble



—From the *Wall Street Journal.*

"STOP!"



—From the *St. Louis Globe Democrat.*

be created under the American flag to compete with foreign ships engaged in the overseas trade, a complete revision of the Navigation Laws of the United States must be made, so that the cost of operating ships under the American flag may be reduced to the level of the cost of operating foreign ships competing for the same business,

And Whereas, no such revision is proposed by the Bill H. R. 18666—S. 6856, which provides for Government ownership and operation of merchant vessels in the foreign trade of the United States; in consequence of which the Government will operate under the same disadvantages that apply to privately owned vessels, magnified by the greater demands which will be made by seamen in Government employ.

And Whereas, Government owned and operated ships operated primarily "to regulate the rates for carrying the mails, and for passenger and freight service" (See Majority Report of the Committee on Merchant Marine and Fisheries No. 1149, accomanving 18666) will unquestionably be operated at a loss,

And Whereas, such loss will be the most insidious form of subsidy or subvention, appearing under the disguise of a deficit incurred in operating such ships, with no limitations upon the amounts of such deficits,

And Whereas, according to the Report of the Majority of the Committee hereinbefore mentioned, "the country is opposed to subsidies, and with good reason," and such granting of subsidies is opposed by all Democratic doctrine.

See Report No. 2755 Part 2 of the Senate, 58th Congress, Third Session, accompanying Senate Bill No. 6291, submitted by Mr. Mallory of Florida for himself, and Messrs. Spight of Mississippi, and McDermott of New Jersey, which stated, inter alia,

"These sections provide for direct subsidies and are so obnoxious to Democratic principles and to the economic sense of the country that we are compelled to enter our earnest protest against their enactment into law. Its chief difference from former direct subsidy bills (reference is made to a bill "To promote the National Defense, to create a force of naval volunteers, to establish American ocean mail lines to foreign markets, to promote commerce, and to provide revenue from tonnage"; introduced by Senator Gallinger) is that it is not as honest as these bills were. It displaces the word 'subsidy' with the word 'subvention' * * * * without any limitation of the subsidy * * * * without any sort of limitation of the total to be paid out of the Treasury now or heerafter * * * *.

"We mean no reflection of duplicity against our colleagues on the Commission (Merchant Marine Commission), but the situation seems to be such that they cannot get away from the idea of direct Governmental aid * * * *. Section 2 ingeniously introduces the subject by the sugar-coated expression 'In the interest of the National Defense and for the performance of public services.' Will the Congress of the United States and the American people permit themselves to be deceived by this transparent disguise? Public sentiment and the sober judgment of the people's representatives have united to condemn every previous effort to enact such legislation, and surely this effort must meet the fate of its predecessors despite the canting phrase 'In the interest of the National Defense and for the performance of public services,' and the substitution of the euphonious title 'subvention' for 'subsidy.' * * * *

"It will be observed also that unlike other previous bills which have been offered from time to time, there is absolutely no limit to the amount which may be expended under this bill."

And Whereas, to still further quote the language of the committee, "Whatever objections to previous subsidy bills have been valid are of equal weight to-day against this section," there is every reason why the Bill H. R. 18666—S. 6856 should be defeated, and no valid reason for its enactment.

Therefore, The Philadelphia Bourse Earnestly Opposes the passage of the Bill H. R. 18666—S. 6856, believing it to be futile for the purposes sought to be accomplished, vicious in principle, and indefensible as a piece of economic legislation.

We Hold that a temporary condition should not be met by paternalistic legislation subversive of all precedent and the traditions of our people; embarking our Government in business as a common carrier on the high seas in competition with the ships of the world and not for gain, but to regulate rates, with the complications which would result with foreign nations from such "unfair competition"; denounced and prohibited by Section 5 of the Act creating a Federal Trade Commission, and further

We Respectfully Urge that the Congress should "strike the shackles from business" on the ocean by revising all those sections of the Navigation Laws which by their restrictions on American ships and ship owners enhance the cost of operation of vessels under the American flag.

PHILADELPHIA BOURSE.
By George E. Bartol,
President.
Attest:
Emil P. Albrecht,
Secretary.

Other organizations have taken occasion to memorialize Congress with reference to this matter, and prominent business men and shippers throughout the country, as well as numerous newspaper editors, have been most emphatic in denouncing such effort as untimely and unnecessary. As another example of what various commercial organizations are doing in their effort to forestall this legislation, it is of interest to note the following memorial sent to the members of Congress on January 29th, by the Merchants' Association of New York:

To the Members of the Congress of the United States:

The Merchants' Association of New York respectfully protests against the passage of Bill H. R. 18666—S. 6856, now pending, to provide for Government Ownership and Operation of Vessels in the Foreign Trade of the United States, and asks your careful consideration of the following preambles and resolutions, which it has adopted in reference thereto:

WHEREAS, The world's commerce and the tonnage engaged in its service have been greatly curtailed as a consequence of the war in Europe; and

WHEREAS, The general advance in freight rates evidences that the curtailment of tonnage for the time being at least, is greater than the curtailment of the commerce which depends upon it; and

WHEREAS, Such curtailment of tonnage is due to various specific causes, viz.: internment, diversion for war purposes, congestion at many ports, capture and destruction, some of which are permanent while others will disappear through the betterment of facilities for handling tonnage at congested ports, through the release or better despatch of tonnage diverted to the purposes of war, and through the operation of prize courts in relation to captured ships; and

WHEREAS, Given the impaired purchasing power of all markets that are served by our commerce and the consequent reduction of demand, except in the warring countries, to an economic minimum, it is probable that the correction of the factors named will gradually tend to normalize conditions; and

WHEREAS, In the meantime, while the oversea commerce of the United States in common with all other oversea commerce is subjected to the advanced freight rates, it is not safe to conclude—and probably incorrect for the reasons already set forth—that any appreciable volume of our shipments to neutral countries waits upon a lower cost of transportation, or that to any important extent the returns to our merchants are less at home ports, where values are regulated by local supply and demand, as a consequence of the higher freights which are a charge upon the buyer; and

WHEREAS, The measure known as the "Ship Purchase Bill," now engaging the attention of Congress with the support of the Administration, designed to bring prompt relief to the freighting situation and incidentally encourage the development of a National Mercantile Marine, is a novel departure from the functions of Government and likely to establish a dangerous precedent in paternalism; and

WHEREAS, The measure referred to can be effective, even for a temporary purpose, only to the extent that interned belligerent tonnage would be acquired and transferred to United States registry; and

WHEREAS, The extent of the tonnage, which, under the terms of the Bill the Government might acquire and transfer to United States registry, would not be sufficient materially to affect the entire volume of tonnage engaged in oversea commerce and could only in degree accomplish its purpose by an employment restricted to certain routes, which would constitute favoritism; and

WHEREAS, The hostile attitude of opposing belligerents to the transfer of such tonnage is not concealed and is likely to give rise to grave international questions and complications in the operation of the tonnage; and

WHEREAS, The present conditions have directed the attention of the entire country as never before to the importance of a National Mercantile Marine, not only—as in normal times—as an adjunct to the Navy in the National defense, as The Merchants' Association has urged for the last fifteen years, but also as a reliance in such an emergency as the war has given rise to; and

WHEREAS, The ultimate success of a Mercantile Marine depends upon interesting private enterprise and management, which could not operate successfully as a partner, or a competitor of Government; and

WHEREAS, With the obstacles removed from the ability to acquire interned tonnage and with the prospect of a continuance of the demand for freight room to give the emergency more than passing importance, there is no doubt that private interests will be alert to seize the opportunity to bring such tonnage promptly into commission; and

WHEREAS, Government exhibits its willingness to lend its support and credit to the formation and development of a National Mercantile Marine; now, therefore, be it

Resolved, That the interests of the country would not be served by the enactment of the Ship Purchase Bill, that the tonnage acquired and administered by Government in accordance with the provisions of that bill would be more likely to have a harmful than a helpful effect in the existing emergency, while the intervention of Government on its own account in this important department of business would work a serious injury to the ultimate and more important end in view; and be it further

Resolved, That The Merchants' Association of New York earnestly confirms its continuous advocacy of Government aid on behalf of a National Mercantile Marine to the extent and for the time necessary to enable it to compete with the Mercantile Marine of other countries for oversea commerce. It confirms its contention that while some modification may be made in the Navigation Laws to equalize conditions, except to cover an emergency the citizenship requirement for watch officers should be maintained, and that a Commission should be appointed to determine and apportion such assistance from Government as is necessary to equalize the increased cost of this feature of the Navigation Laws and others that discriminate against the competitive conditions of United States tonnage, as far as they may be retained; and be it further

Resolved, That the moneys which the Ship Purchase Bill would appropriate to the purchase of tonnage by the Government of the United States should be made available to assist private interests in developing a Mercantile Marine under proper restrictions and with adequate safeguards to the Government; and be it further

Resolved, That the urgency with which The Merchants' Association of New York has hitherto argued for a Mercantile Marine of exclusively national construction should yield to meet the present emergency in advocating the purchase by American citizens, with such Government support as it has hitherto advocated, of such foreign tonnage as may be acquired and forthwith placed in commission without giving rise to international complications and the dangers that they threaten; and be it further

Resolved, That the Government should exercise its good offices to remove such objections as may be made to the purchase and operation of such tonnage by American citizens.

Respectfully submitted,

THE MERCHANTS' ASSOCIATION OF NEW YORK.

W. A. Marble,
President.

S. C. Mead,
Secretary.

AN INDEFENSIBLE ATTITUDE

In the development of the controversy between the Post Office Department and the railways regarding proper compensation for carrying the mails, the attitude of the Government daily becomes more incomprehensible and indefensible. It is bad enough for the Postmaster General to declare a surplus for the Post Office Department when it is obtained through improper payment for the service performed; and for certain members of Congress to attempt to pass a measure further reducing the already inadequate pay, but when it is further understood that the rate paid the Government-owned Panama Railroad for carrying the mails, is approximately twenty-eight times as great as the average rate paid the privately owned railroad in the United States, the gross unfairness of the Government's attitude is made clearly and convincingly apparent.

The following statement recently issued by the Committee on Railway Mail Pay, discloses some significant facts and it would be interesting to learn what explanation the Government has to offer.

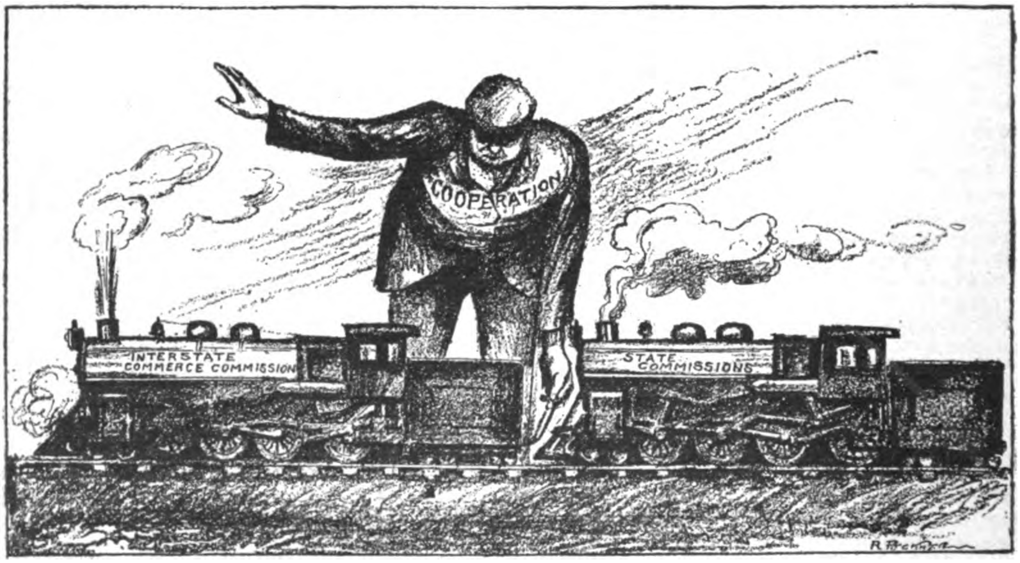
Had the Panama Railroad been paid at the average rate allowed the railroads of the United States, it would have received last year only about $9,000 for carrying the mails. It actually received $250,306.

On the other hand, if the railroads of the United States last year had been paid the Panama Railroad rate, their receipts for carrying the mails would have been $1,557,000,000, or more than five times the total revenues of the Post Office Department. They actually received $56,000,000, or about one fifth of the Department's revenues.

The high rate paid the Panama Railroad for carrying the mails is not warranted on the ground that its mail traffic is small and that it is therefore performing a retail service. On the contrary, its mail traffic is large, exceeding 10,400 pounds daily.

The railroads of the Untied States make no claim to be entitled to the excessive mail rates paid the Panama Railroad. These comparisons are offered merely to show the difference in treatment accorded to a Government-owned and to privately-owned transportation systems in this respect.

The railroads owned by citizens, in fact, have



COUPLE THEM UP!

—From *Financial America.*

not asked Congress to advance their mail pay rates at all. They have merely asked to be paid for all the mail they carry and all the special facilities and services they furnish the Post Office Department.

In a previous pamphlet the Committee on Railway Mail Pay told how the Treasury Department obtained the transportation of 200 tons of gold—$99,000,000 worth—from Philadelphia to New York without cost to the Government for the railroad service required.

The gold was simply declared to be parcel post and was "mailed" as such, thereby compelling the railroad to carry it without additional payment under its four-year mail contract with the Government. Four special cars were used and were hauled into New York by special engines. More than 100 guards were carried the round trip without payment of fare.

The Government-owned Panama Railroad is at times called upon to transport treasure. Last year it carried $9,228,660 worth across the Isthmus and charged $28,129 for the service.

New York is about twice as far from Philadelphia as the city of Panama is from Colon. The value of the treasure shipped from the Philadelphia Mint to the New York sub-treasury was more than ten times the value of what the Panama Railroad carried.

Had the Government paid for the Philadelphia-New York gold shipments at a rate relatively as great as the Panama Railroad charges for carrying treasure the payment for the service would have been nearly $600,000.

Such a charge would have been grossly inordinate by comparison with rates prevailing in the United States. The express charge for shipping $99,000,000 gold from Philadelphia to New York would have been $64,350. For this sum the express company would have undertaken to perform all the details of the service. It would have arranged for (and also paid for) the railroad transportation, would have insured the gold and furnished its own guards.

The railroads are not prepared to say whether the express company's charge for such a service—risk and responsibility duly considered—might properly be more or less than the sum named. The important fact is that this charge represents a rate equal to only a little more than ten per cent of the Panama Railroad's rate for treasure transportation.

The Government-owned Panama Railroad obtained nearly 6½ cents for each $1,000 of treasure carried one mile. The express company's charge for carrying gold between Philadelphia and New York would be about 7-10 of one cent for each $1,000 transported a mile, and this would have included insurance in transit and fair payment to the railroad.

But, by requiring the railroad to carry the gold as "mail," all cost to the Government, save for guards' wages, was eliminated.

How business men view the effort on the part of certain members of Congress to still further reduce the compensation paid the railways, is indicated by the following report and resolution adopted by the Philadelphia Board of Trade and laid before the Senate and House of Representatives, the latter part of January.

After a brief holiday recess, the Federal Congress is again assembled in Washington and apparently not in a spirit of "live and let live" for the people and capital, but in a growing and increasing spirit for extending monopoly in the hands of Government.

Apparently not satisfied with having almost crushed the life out of the express business (without which shippers cannot be adequately served) by having extended postal facilities to the maximum weight of 50 pounds, which will cover many classes of merchandise, effort is now being made to effect new legislation relating to the pay for transportation of the mails by means of a rider to the post office appropriation bill H. R. 19,906.

Legislation by means of riders to appropriation bills has become a favorite method of securing legislation without full and fair discussion, in the closing weeks or days of a session, and is open to just criticism. This new legislation proposes payment for mail transportation on the basis of space occupied rather than upon weight, and would seem to place autocratic power in the hands of the Postmaster General, through stating that rates "not exceeding" figures named may be paid, but naming no minimum rates.

It would seem that the request of the transportation companies for a continuance of the weight basis and more frequent weighings than once in four years is but reasonable, especially in view of the tremendous increase of the parcel post, stated by the Postmaster General in his report in November, 1914, to amount to 800,000,000 packages a year. Chairman Moon (the author of the rider) recently stated in the House that while his bill showed an increase in compensation on its face of $2,000,000, it was expected by the exercise of administrative discretion to have the parcel post carried for nothing and the pay of the railroads reduced $8,000,000 per annum.

In other words the Federal Government proposes to take one fifth of the recent award of the Interstate Commerce Commission from the railroads to help the Post Office Department show a profit and this is the character of legislation that will force the railroads to again ask for increased compensation from shippers.

Resolved That the Philadelphia Board of Trade earnestly petitions the Honorable the Senate and House of Representatives to withhold favorable action upon the rider to the post office appropriation bill now under criticism (the provisions being the same as in H. R. bill 17042).

MOVEMENT TO ABOLISH FULL CREW LAWS

Among the most inexcusable laws which State legislators have placed upon the statute books, have been those which refer to full crew requirements. The enforcement of these laws, in every State in which they have been passed, shows them to have been absolutely unnecessary. They have not only placed the railways at a useless expense but have seriously affected the discipline of the service by compelling the carriers to employ and carry on their trains a large number of idle men.

The railways, from the beginning, have recognized the pernicious influence of these laws and have been constantly casting about for means by which they could be repealed. In Missouri, at the November elections, as reported in a recent issue, the people themselves, by an overwhelming majority, authorized a repeal of the full crew law of that State.

It now develops that the railroads of Pennsylvania and New Jersey are to make a concerted effort at the present sessions of the legislatures of these States, to have similar action taken, and thirteen railroads have instituted a joint campaign by which a public appeal to the people is to be made for their support in accomplishing this object. A committee has been organized and R. L. O'Donnell, general superintendent of the Pennsylvania Railroad, has been made chairman. Through this committee the Executive Committee, composed of Samuel Rea, president of the Pennsylvania Railroad; Theodore Voorhees, president of the Philadelphia and Reading Railway, and Daniel Willard, president of the Baltimore and Ohio Railroad, has issued the following preliminary statement to the people of Pennsylvania and New Jersey:

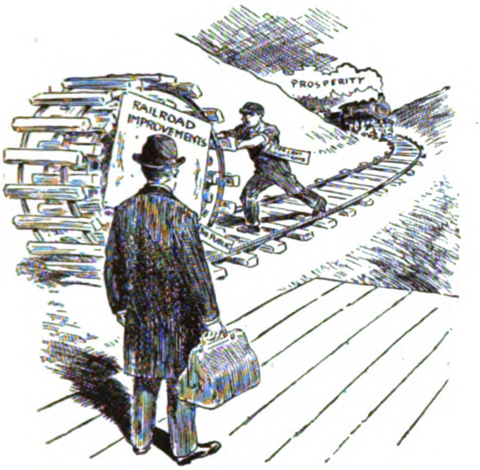
> After consideration, and acting to promote the larger interests and the greater good of the public, the corporations, their employes and their security holders, the managements of thirteen railroad companies in Pennsylvania and New Jersey have determined to submit an important matter to the public.
>
> Briefly stated, they intend to present the question of the repeal of the full crew laws to the public, this being a problem in the proper solution of which the public is vitally interested and should have the right to determine upon its merits.
>
> This presentation will be done openly, frankly and upon all the facts, coupled with plain statements as to exactly what the railroads feel to be right, and the reasons therefor. The railroads propose to submit the question directly to the public, that the people may determine what is just, right and fair. This is done recognizing the fact that the interests of the public stand superior to those of either the corporations or their employes, and feeling that the public, by its greater interest, may be trusted to exert its dominating influence with intelligence for what is best.
>
> These railroad companies seek to enlist the support of the people of the States of Pennsylvania and New Jersey for repeal by the legislatures of the full crew laws. Their conscientious judgment is that these acts work an injustice and accomplish no good.
>
> Careful statements of the matter are being prepared and will be given the widest sort of publicity, beginning within a few days. In making such presentation, space will be taken in daily and weekly newspapers in Pennsylvania and New Jersey. By this straightforward method the whole proposition will be put squarely before the people.
>
> In no sense do the railroads war upon their trainmen. The full crew law, which compels employment on thousands of passenger and freight trains of extra men whose services are not required, forces waste—not less than $1,500,000 a year in Pennsylvania alone. It means in all such cases employment without service.
>
> That is a defiance of economic law. It makes a proposition which organized labor hurts itself in upholding. It throws an improper cost upon the railroads. This ultimately rests upon the public as a burden and makes a charge which transportation service should not be called upon to bear, because it is productive of nothing good, neither in improved service nor increased operating safety. On the contrary, it makes it impossible for the railroads to do many things for the public which the money now so wasted could be expended for.
>
> Let us add that if there shall be evidence that without such laws the railroads would under-man trains, to the hardship of employes or the detriment or danger to the public, that, assuming the present public service acts do not give to the commissions ample powers to determine what crews are necessary on different trains and to compel the railroads to man trains as ordered, we will openly support such amendments to the present acts as may be necessary to give such assurance.

THE SPIRIT OF SERVICE

Railway competition is becoming more and more a matter of service rather than either of rates or facilities. Competing lines, in many cases, are now so nearly equalized in these particulars, that the progressive railway official is looking largely to other influences to hold and increase his patronage. This is evidenced by the constant effort being made to instill into the minds of railway employes the necessity of according the traveler courteous treatment and of showing every possible consideration to the shipping public. Successful railroading, in the future, is going to be based in no small measure upon this consideration, and the wise and progressive railway manager has already begun to emphasize the importance of the fullest development of the spirit of service.

How far-reaching an influence such a service may exert is illustrated in an unusual manner by a sermon which was delivered recently by the Rev. Russell H. Conwell at the Baptist Temple in Philadelphia. The subject of Dr. Conwell's sermon was "The Spirit of Service," and in its delivery he directly referred to an experience which he recently had while traveling over the Chicago and North-Western Line. He said:

> It was my good fortune this week to go from



SOME PUSH BEHIND IT NOW.

—From the *Philadelphia Record.*

Chicago into Wisconsin upon the Chicago and North-Western Railway. As soon as I entered the station in Chicago there was a sense of homeness, of welcome, of generosity, about the place such as I have seldom experienced in fifty-four years of traveling. When I went to the ticket office I was greeted almost as a friend, although I was an utter stranger; the officials about the place seemed to be so cheery, so ready to give any information, and so earnest in their desire to be accommodating and friendly; upon the train all the porters, brakemen the conductors and the waiters seemed to be so like a family, that when I went along the railroad to Milwaukee and other places in Wisconsin I felt an absolute change of traveling atmosphere. I had been riding three continuous nights before that, and I was exceedingly exhausted, and I longed to stop somewhere to gain rest. But I found it right there. I found it was not that I needed to stop traveling, it was not that I needed to leave the train and go into the woods to rest. I simply needed the spirit which I really found there. Every other passenger seemed to find there that same spirit of service, promptness to do, readiness to help whoever came in the station or train. Their whole ambition seemed to be to accommodate, to serve, and all about the railroad wherever we stopped to feel that it was their joy to serve.

The spirit of service—it is not possible to put into language just what they did. You cannot express it so a stranger would know unless he experienced it; but it is that kind of homeness, of delight, which the Saviour seems to have referred to when he told us, "Whatsoever church you enter, if you feel at home there, stay there. But when your spirit returns to you and you no longer feel at home in that place, then you are to go on to the next church and join that." That feeling of at-homeness was so characteristic of that railroad company that before I reached my destination I was rested. I felt that I could go singing to the hotel because of that spirit of service, and I felt that I had been carried into it myself, as though a flood had taken me and carried me on, and when I reached the hotel in the town where I was to lecture I felt deeply desirous of helping someone. I felt like speaking kindly to everyone I saw. It made life better for me, and many of them were surprised at my wonderful sociability when I am usually so reticent when I get so weary.

The difference was in the spirit of service there was about the place. It was not that they were acting on any rules, for they had no rules, but everybody, from the head down in that wonderful corporation seemed to have that inward resolution to be happy and sociable helpful, cheerful and encouraging, and to smile on every reasonable occasion, and to say good words of cheer when the traveler departed. Oh, what a difference there would be in the intellectual and moral life of the United States if every railroad company had that spirit about it!

WOMEN IN RAILWAY WORK

The freer entrance of women into the business world has resulted, within recent years, in placing numbers of them in positions of responsibility both in professional and industrial pursuits. The railway field has perhaps felt this influence less than any other branch of business. While the work in the general offices of a number of our large systems is, along certain lines, now satisfactorily performed by an increasing number of female employes, the instances are extremely rare where advancement has been made even to the less important official positions. This is rather to be wondered at in view of the fact that woman's greater activity in business, would make it possible to employ her in certain

MISS DAISY ODEN, PASSENGER AGENT OF THE CHICAGO, BURLINGTON AND QUINCY RAILROAD.

official capacities in which she might be reasonably expected to produce results of a satisfactory character.

Railroading has always been considered exclusively a man's task and, in the pioneer days, and for many years thereafter, this was of necessity true. Time, however, has broadened the field and developed womanhood in a manner little dreamed of by our ancestors, until to-day, there is the beginning of evidence that this field, as well as others, is to feel their increasing influence.

A short time ago the RAILWAY WORLD published an account of a woman train operator in the South, who had been filling an important position for over a year to the complete satisfaction of the railway employing her. In fact, she is reported to have established an enviable record. Attention was also called in a recent issue to a woman who had been elected president of a small Western railroad.

The most notable example of a woman's progress in railway work, based on ability and merit, is that of Miss Daisy Oden, of Davenport, Ia., who is the Tri-City passenger agent of the Burlington in that State. Miss Oden's territory includes the important cities of Davenport, Rock Island, Moline, East Moline, Battendorf and Silvis, Ill., and the numerous ticket agents at these points are directly responsible to her for the proper performance of their duties.

Miss Oden's success is the logical result of taking every advantage of her opportunities. A few years ago, she entered the employ of the Western Union Telegraph Company, and after becoming a competent operator, secured a clerical position with the Burlington at Davenport. Her ability to thoroughly grasp the details of the city offices resulted in her being appointed chief clerk and then asistant city ticket agent, from which position she was advanced more recently to that of Tri-City passenger agent.

Miss Oden has been asked what she considers are the essentials for success for a woman in railroad work. In brief she states them as close application and determination to win. To quote directly from a statement made the RAILWAY WORLD:

> If you want to be a successful railroad man, you must exert yourself to keep posted on all the details of the business; be courteous and obliging, and have the interests of your road in mind at all times. I know of no reason why many women should not have done this same thing.
>
> My advice to women who wish to rise in the railway field would be to miss no opportunity to learn. That is the real thing that is beneath all the others. If one wants to be a railroad woman she will welcome every opportunity that comes to get new light on the problems that are bound to come up in that business. Such opportunities must be more than welcomed, they must be sought. Then give the public freely of what you know.

While all this sounds trite enough to the average progressive railway man who has always appreciated the necessity of working along similar lines, its significance rests in its successful application by one of the opposite sex and the probability of the development of greater opportunities in its more general application to womankind.

THE DEADLY TOLL OF TRESPASSING

The Railway Business Association has recently issued a Bulletin on the above subject in which it is shown that 5,000 deaths a year occur through trespassing on the railways' right- of-way, which in turn, is due to lack of laws or the proper enforcement of those already in effect. In order to relieve this deplorable condition, the Railway Business Association urges stricter laws and a stricter enforcement of those in effect. To quote from the Bulletin:

> There were 33,000 persons under 21 years of age killed or injured while trespassing on railways of the United States from 1901 to 1910, enough to make a mile post for every mile around the world.
>
> Comparing the record of the United States and the United Kingdom the following figures are quoted:
>
> | | | Killed. | Injured. |
> |---|---|---|---|
> | United States | 1901-10 | 50,025 | 53,427 |
> | United Kingdom | 1901-10 | 4,434 | 1,315 |
>
> Telling why this striking difference exists, the explanation is given:
>
> "In the United States laws against railroad trespassing are generally not enforced.
>
> "In the United Kingdom persons other than passengers or employes found on railroad property are fined $10 for each offence."
>
> When a Titanic goes down, it is pointed out. "and hundreds perish, a thrill of horror runs through Christendom. Thousands perish one at a time and nobody pays any attention, not even the neighbors."
>
> Progress toward enactment of laws providing effective penalties and toward conviction and sentences for those who wilfully expose themselves to danger is said to be slowly spreading, while loss of life and damage as affecting railways is increasing. France punishes trespassers by fines up to $579 and jail up to a month; Germany, by fines up to $25; Canada by fines up to $50 and imprisonment up to two months. The Wabash Railroad operates a part of its mileage through Canada. In

the year ending June 30, 1914, of the 94 trespassers killed on that road only three were killed in Canada.

"In the United States laws are few, and even where penalties are prescribed, magistrates hesitate to impose them, as local authorities dislike to feed and lodge convicted tramps." Trespassers, however, "include little children and wage earners living in the vicinity, whose death or disability leaves families destitute.

"Elevation of track in Chicago was resorted to at an expense of 70 millions, which is expected to reach 150 millions. Trespassers leap over a city ordinance and climb up on to the elevation in their conscientious devotion to the pursuit of being killed and maimed. In three months 339 arrests were made on the elevated right of way of four systems. Only 67 of the offenders were punished.

"Thirty-five States have no laws specifically prohibiting persons walking on railroad right of way. Thirteen States by statute prescribe penalties ranging from $5 fine to 10 days in jail in Maine to $500 fine or one year in jail in New York; New York, Wisconsin, Maine, New Hampshire, New Jersey, Massachusetts, Virginia, Missouri, Rhode Island, Delaware, Georgia, Minnesota and Washington."

Missouri has a law which protects the railroad from damage suits, for the purpose of which trespass is a defence for the railroad, but the law in defining the act a trespass for that purpose specifically says "but not otherwise."

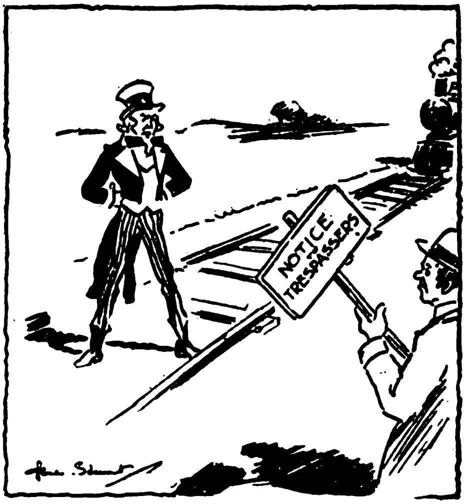
Activity on the part of many railroads to lessen the number of fatal accidents on their lines is bearing fruit. The New York Central Lines took the question up with justices of the peace and police court magistrates armed with statistics. Newspapers were urged to give the campaign publicity. Warnings in several languages were posted, while manufacturers and public school teachers were enlisted. The railroad's police department made arrests systematically. During May, June and July 1914, there were 4,545 arrests and 4,015 convictions. In seven months ended April 30, 1914, there was a reduction in those killed over the corresponding period one year previous from 136 to 98.

The American Museum of Safety, New York, has published pamphlets containing stories of child interest, and two New York and Brooklyn schools have issued Safety League buttons, organizing safety patrols. A pamphlet issued in Texas is "Harry Hop-the-Train," describing Harry's surgical experience and his release from the hospital a cripple who could never join his playmates in the old swimming hole.

"Minors and children, following the example of their elders, flock upon the tracks, engines, cars and turn-tables and are ground to pieces or crippled for life. Tramps and yeggmen travel around the country in 'side-door Pullmans,' robbing box cars and burning ties, stations, bridges, and timbers, and robbing farmers, country banks, stores and postoffices. In Canada, where stealing rides is a crime punishable by fine of $50 or two months in jail, there are very few tramps.

"It would probably cost the States and municipalities less to enforce a law against trespassing, than it does to pick up and bury the dead and care for the cripples."

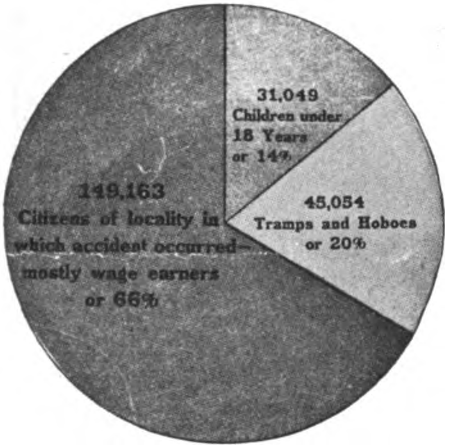
Commenting editorially on the situation as disclosed by the Association's report, the Chicago *Herald* has had the following to say:



Is Getting Killed or Mangled on a Railroad Track an Inalienable Right of an American Citizen?

> Is getting himself killed or mangled on a railroad track such a right of the American citizen that to abridge it would be oppression? Is this one of those "natural and inalienable rights" to which all men are born according to the Declaration of Independence? Is the average American so attached to this right—does he hold it so dear and precious—that against serious efforts to take it away he would be moved to take up arms, or, at least, to vote solidly.
>
> Thirty-six States of this Union appear to think it is, for they have no law specifically prohibiting persons not railroad employes from walking on railroad tracks. One of these, the State of Missouri, has what at first appears to be such a law, but on examination proves to be an unreserved recognition of a mans' right to be run over by a train. A denizen of Missouri is a trespasser when he walks on a railroad track only if he is hurt or killed and he or his heirs bring a damage suit. In that event the law regards him as a trespasser, "but not otherwise."
>
> Even where there are city ordinances they are rarely enforced. Out of 339 persons arrested on the elevated rights of way of four roads in Chicago in three months only sixty-seven were punished.
>
> Apparently the average American clings to the privilege of being killed or maimed on a railroad track as a precious possession. But should it be regarded, especially when we consider the widows and orphans it leaves, as a natural, inalienable and even "constitutional" right?

The following diagram shows how much legislation is needed to prevent people from walking on railroad tracks and "flipping" on the cars. During the past twenty-four years 108,009 trespassers were killed, while 117,257 were injured, a total in all of 225,266.



A GRAPHIC DISPLAY OF THE RESULTS OF TRESPASSING.

With such a slaughter it is pertinent to inquire why laws to prevent it have not long ago been made and enforced.

THE SOUTH'S DEPENDENCE UPON RAILWAY PROSPERITY

Much has been said recently both in the technical and daily press with reference to the interdependence of railways and general business, and it is as true to assert that general business cannot prosper without railway prosperity, as it is to affirm that the railways cannot prosper without general business prosperity. While this fact is now more generally known and acknowledged, there are those who still retain a narrow and selfish viewpoint and continue to cling to the time-worn and erroneous belief that "to do the railways," is the proper function of the politician, the shipper and the traveling public.

This idea, however, is fast disappearing from the minds of the shipper and the traveler, but many politicians still cling to it tenaciously. This is particularly true in some of the Southern States where railway legislation and regulation of the most oppressive character has been forced upon the carriers to such an extent as to greatly affect the efficiency of the service and to practically stop additional railway construction. In no section are new railways so imperatively needed. Vast tracts of undeveloped and fertile land only await proper transportation facilities in order to increase immeasurably the wealth of the South. The State of Texas is a striking example of this condition. This vast territory presents a pitiful illustration of the blighting effect of restrictive railway legislation. Golden opportunities have been permitted to slip by and will continue to slip by until the citizens of that great State more fully appreciate that until a more progressive regulative railway policy is adopted, adequate transportation facilities are impossible. The press of the South has been hammering away at this point for months past but with apparently little effect. It is to be regretted that among the public representatives of the South, both at Washington and at home, there are at present, too many men of the peanut political stripe, men who have lamentably failed to rise to the exigencies of the dawn of a new commercial era. To quote from an editorial appearing in the February issue of *The Lawyer and Banker and Southern Bench and Bar Review*:

> Railroad construction in the South in the year 1914 showed the smallest mileage in the last half century. This is largely due to the Congressional efforts of such men as Senator Vardaman. It must be remembered that in Congress the South is in control. Through Congressional activity exerted in the wrong direction, the entire railroad industry of the country has suffered and the South has in consequence been paralyzed more than any other section of our land. This is a conscious loss which totals up an enormous figure.
>
> This loss comes at a time when it can not be borne—when the cotton crop has decreased, not in quantity or in quality, but in marketability; while important States have received another black eye in the adding of resinous products, by the Allies to the contraband list. Rosin is the binder of shrapnell shells, camphor is a constituent of smokeless powder, and turpentine is the only discovered basis for a synthetic substitute. These, with the depression of trade, make the burden heavy to bear. But persecution of the railroads, as the cheapest kind of politics, has added immeasurably to the paralysis of what once looked like promising development of Southern resources.
>
> What is at the bottom of all this? It is two-cent fare laws, extra crew laws, mischievous meddling in the place of regulation, truckling to the labor unions, sacrificing broad interests to the selfish demands of shippers who demand rates bearing no relation to the value of the service performed. These things have frightened capital away. Real estate remains undeveloped, the industries which supply the railroads drift from bad to worse, and the last economic failure is seen in the fact that additions to taxes already oppressive yield a lower revenue to the respective States.
>
> There is an old fable of Aesop which Congress and the Southern legislatures should ponder. It tells of the dispute between the Sun and the East Wind as to which could make the traveler remove his cloak. The wind only made him draw it closer around him. Prosperous railroads mean prosperous business, and a larger tax collection for public development from the greatest taxpayers in the country.

APPLYING THE LONG AND SHORT HAUL CLAUSE IN SOUTHERN STATES

The Interstate Commerce Commission recently issued an order, which in effect, is a general enforcement of the long and short haul clause as applied to rates in Southern States. The order has made necessary a general readjustment of freight rates throughout particularly the Southeastern territory and for many months a committee of traffic officers has been in continuous session working out a revised system of freight tariffs to comply with the order.

Now that the work is nearing completion, and for the purpose of placing the matter squarely before the people of the South so that they may appreciate the difficulties encountered in making these readjustments and the desire to treat all fairly, the following statement, "To the people served by the railroads of the South," and signed by Presidents J. R. Kenly, of the Atlantic Coast Lines; W. A. Winburn, of the Central of Georgia; H. M. Smith, of the Louisville and Nashville; W. J. Harahan, of the Seaboard Air Line, and Fairfax Harrison, of the Southern Railway, has been published and given a wide general distribution:

> An order of the Interstate Commerce Commission, pursuant to requirements of Federal law, compels a general revision of Southern freight rates. It is proper that the people of the South should be informed as to the reasons for this revision and the principles upon which it is being made.
>
> Excepting the Norfolk and Western, Chesapeake and Ohio and Virginian railways, which lie in Official Classification territory, the railroads of the Southeast receive virtually no part of the five per cent increase in rates recently acquiesced in by the Interstate Commerce Commission. While the need of the carriers of the South for increased revenue is certainly no less than is that of the Northern and Eastern roads, that need is in no way related to the revision of rates now in progress which arises solely from the necessity of more nearly conforming to the so-called "long and short haul clause" of the law as amended in 1910, and as now construed by the Interstate Commerce Commission.
>
> The original act to regulate commerce forbade the making of lower rates for a longer than for a shorter distance within the same line or route under substantially the same circumstances and conditions. The carriers were free to meet competition as they found it and were required to answer only upon complaint as to the reasonableness of their acts.
>
> The amendment of 1910 deprived the carriers of the right to initiate departures from the long and short haul requirements, and they may no longer meet competition as they find it if the long and short haul requirement of the law is involved, unless they can first obtain the approval of the Interstate Commerce Commission. They were furthermore required, by this change in the law, to apply to the Commission for authority to continue in force rates existing at the time of its passage which contravened the long and short haul principle.
>
> The existing rate structure of the South is not the creation of traffic managers of this generation. It is an inheritance from those who built the roads, and finds its explanation largely in the geography of the South, and in a public policy which encouraged its creation. The changes now in progress are not of the carriers' choice.
>
> Water competition, the most important factor in bringing about departure from the long and short haul principle of the law, has been peculiarly influential on the rate adjustments of the South, surrounded as it is on three sides by navigable water and penetrated by navigable streams. Termini of the first roads were on navigable waters and rates between these termini were from the beginning depressed because of this water competition. When, subsequently, railways were extended to the interior, distributing points were thereby created, where there arose competition of two or more markets, or of two or more carriers, resulting in depressions in rates, even when there was no direct water competition.
>
> These conditions undoubtedly contributed to the commercial and industrial development of the interior South, and, while they resulted in more frequent departures from the long and short haul principle of the law, the carriers had every reason to believe that their practice had the approval of the public, even when it was not directly the result of public demand.
>
> Now, the Interstate Commerce Commission, pursuant to the requirements of an amended law, has concluded an inquiry into rates from the Eastern Seaboard, including the Virginia cities, from South Atlantic and Gulf ports, and from Ohio and Mississippi River crossings, into the Southeast and Mississippi Valley territory. As a result the Commission has in large measure condemned existing departures from the long and short haul requirement, except where justified by competition beyond the control of the rail carriers, a phrase which came to be restricted to mean direct or indirect water competition.
>
> Obviously, the removal of inequalities condemned by the Commission, by reductions only, would result in disaster to the carriers. This fact is recognized by the Commission, which, in its review of the situation, stated:
>
> "It is entirely clear that the revenues of a large percentage of the lines in the Southeastern territory would be so impaired by such a procedure as to make it impossible for them to meet their operating expenses, taxes and fixed charges and leave their stockholders even a moderate return."
>
> It is equally obvious that it would be unfair to punish the carriers, in conforming to a changed public policy, for acts which at the time of commission were approved by public opinion.
>
> Hence in working out the order of the Commission such elevation of rates to the depressed points must accompany reductions to the much larger number of intermediate points as will at least preserve the revenues of the carriers.
>
> The task of revision is no easy one. It has been undertaken in loyal effort to conform to the law, as now interpreted, and to be fair to all.
>
> Departures from the long and short haul principle in the South are not confined to interstate traffic. There are in the South a great many in-

trastate rates that do not conform to the principle. If undue discriminations are to be avoided, these intrastate rates must be brought into harmony with the revised interstate adjustment being made under the direction of the Interstate Commerce Commission. It is the purpose of the railways of the South to take up each intrastate revision with the several State railroad commissions.

ANNUAL MEETING OF THE UNITED STATES CHAMBER OF COMMERCE

The third annual meeting of the Chamber of Commerce of the United States of America, which was held at the National Capitol on February 3d, 4th and 5th, proved in many respects to be the most notable gathering yet held by this National organization. President Wilson his Cabinet members and high Government officials, responded with alacrity to the organization's invitation to make addresses. Government representatives also sat continuously on the floor of the Convention as interested listeners.

The Administration's merchant marine proposal became the main topic of deliberation at the meeting. With characteristic desire for the facts and the truth, six hundred delegates from every corner of the United States sat through a mighty contest of oratory and exposition on the shipping subject which lasted the better part of two days of the three-day meeting.

As its gladiators in the shipping fray, the Administration advanced Secretaries Bryan, McAdoo and Redfield. Those gentlemen brought to bear on the delegates every argument they could muster on the subject, and earnestly pleaded for the support of this nation-wide contingent of business men. Flanked by an adverse committee report of the Chamber, the minority side of the great economic struggle in Congress sent in Senator Burton, United States Senator from Ohio. A full afternoon of deliberation by the delegates themselves resulted in neither rejection nor adoption of the report of their committee, so, with a referendum ordered, they went home to submit the question to the commercial organizations that sent them to Washington.

Responding to the opportunity to introduce resolutions, the delegates proceeded to furnish work for the committee appointed on that subject, headed by the former president of the Chamber, Harry A. Wheeler, of Chicago. The proposals thus advanced for the consideration of the convention covered a wide range, from the suggestion that American business be withheld from nations at war to the project of sending more business men to Congress. Resolutions also were offered on income tax features, water power laws, the favored nation clause, embargo on flour, second class postage and riders on appropriation bills.

Secretary Bryan, in his address on "American Investments Abroad" on the afternoon of the first day of the meeting, frankly referred to the Administration's project of carrying American commerce in Government-owned bottoms. It was the opening gun of the shipping controversy. The applauders of Mr. Bryan's plan, met the expressed sentiment of the opposers, who at one time shouted "No! No!" and Mr. Bryan knew he was making his plea at least to a divided court.

In an address bristling with plain truths for the business man, Samuel McRoberts, vice-president of the National City Bank of New York, handled the topic: "Our National Policy as to Investments Abroad." The convention came to its feet with cheers when Mr. McRoberts portrayed what he termed the hypochondriacal conditions of our business people in the past, and made a plea for a gripping foreign commerce policy. He recommended the amendment of the anti-trust laws which would permit our merchants seeking trade abroad to meet trade combinations there.

President Wilson spoke at the evening session of the first day of the meeting. Entering the hall to the hearty plaudits of the standing twelve hundred men and women—the delegates and their guests—he at once took the platform and was presented by President Fahey. In his happiest vein the President launched into a cordial address which lasted an hour. Continual bursts of applause met the truisms, the pleasantries and the passages of serious import which the President gave his hearers. He congratulated the National Chamber on its democratic organization and asserted that it was so fashioned as to strengthen representative government. The President warned his hearers that the man on the outside of affairs had to depend for his action on the advice of those on the inside; that the commercial interests of the nation, on the inside of their own affairs, had but to let the Government know their needs and they would have them satisfied if those needs were just.

President Wilson admitted frankly that he was in doubt as to the relation the anti-trust laws should bear toward combination for the foreign trade, and he asked the business men to give him their advice.

On the second day of the meeting at ten o'clock, William G. McAdoo, Secretary of the Treasury, delivered his address: "Development of the Merchant Marine of the United States." This was the firing of the Administration's biggest gun in the interest of the Government steamship project. The Cabinet official told the delegates an emergency had arisen whereby ships were needed and that the Government was the only agency for their supply. He read copiously from letters and telegrams he had received from organizations and individuals from all sections of the country asking for the ship-purchase law. The efficacy and usefulness of the Revenue Cutter Service was cited as an instance wherein the nation spends its money to a laudable purpose with no hope of remuneration.

"Where is that fearless American spirit of old?" the Secretary demanded. "I am sure we still have it and that it will yet be brought into play in handling this vital problem.

Theodore E. Burton, United States Senator from Ohio, followed Secretary McAdoo. He preached the doctrine of safety and caution where the interests of the whole people were so heavily involved.

The majority report of the special committee on Merchant Marine, advising the convention adversely to President Wilson's plan, and putting forward a system whereby buyers and builders of steamers should have financial assistance from a so-called Marine Development Company, and a readjustment of mail-carrying fees, was the bone of contention. Until long after nightfall the convention debated. Keen argument, for and against, and good-natured colloquy kept everyone on the qui vive until the vote was taken and the report of the Chamber's special committee was ordered to a referendum.

The great ball-room of the Willard, where the convention was held, became a banquet hall at night. The delegates and accompanying ladies, and invited guests sat down to a dinner of five hundred covers.

The after-dinner speakers were William C. Redfield, Secretary of Commerce; Charles C. Hamlin, governor of the Federal Reserve Board; Joseph E. Davies, Commissioner of Corporations; and Chief Justice Harry Covington, of the Supreme Court of the District of Columbia.

Secretary Redfield aroused the unbounded enthusiasm of the diners with his frank exposition of the manner in which the Government, through his department, was endeavoring to aid the commercial interest of the country not only to expand at home, but to invade the now inviting foreign fields. He said that America's present opportunity is the greatest that any nation has ever encountered since the world began. He warned his hearers that public opinion, when it got the facts in regard to foreign steamship concerns breaking their contracts with American shippers and learned of the millions of tons of freight piled upon the wharves of this country and undelivered, would demand a remedy.

Governor Hamlin portrayed in clear and telling manner financial conditions in this country before and after the creation of the Federal Reserve Board. Commissioner Davies set forth the features of the new Federal trade commission law. Justice Covington, formerly a member of Congress, reminded his hearers that it was a Government official—an army officer—who built the Panama Canal and pleaded for a better understanding of the attitude of members of both Houses toward business.

The report of the Committee on Resolutions contained an important proposal, in resolution form, for the appointment of a committee of the National Chamber to bring about hearty co-operation between the Federal Trade Commission and the commercial interests of the country. The resolution which was adopted, contained an expression of hope that this voluntary committee, representing the business interests of the country, might come to occupy a relation toward the Commission not unlike that prevailing for the Advisory Council under the Federal Reserve Act.

Other resolutions adopted were those favoring the creation of a National Budget and for budgetary procedure in exhibiting and determining the revenues and expenditures of the Government annually; protesting against the ruling of the Treasury Department on the income tax law which denies to the taxpayer the right to deduct from his income losses arising from transactions, the profits from which it is his duty to include; favoring a tariff commission; urging an increase in the appropriation for gathering commercil statistics; urging Congress to reject the so-called Dietrich amendment to the Army apropriation bill in so far as that amendment seeks to prevent the study of methods to increase industrial efficiency in manufacturing establishments of the Government, and to forbid additional compensation to employes in reward of improvement in skill and effort. The delegates, by resolution, also thanked the President for his inspiring address to the convention on Wednesday evening; and passed other resolutions of a similar nature.

On trust legislation a special committee reported to the convention through its chairman, R. G. Rhett, of Charleston. This committee devoted special attention to the question whether or not American business men should be assured of their freedom to co-operate for the promotion and extension of our foreign trade. Mr. Rhett also reviewed trust legislation and court decisions of a quarter century regarding restraints on trade and monopoly, and expressed the conclusion of his committee that notwithstanding many conflicting points of view on the part of the courts the trend of the decisions and of legislation is to establish the proposition that combinations, even in domestic trade, are not illegal unless they work an appreciable and obvious injury to competitive trade and the public.

"On account of the many conflicting decisions, however," Mr. Rhett concluded, "business is hesitating in regard to foreign trade and the necessity abroad, apparently, of meeting combination with combination. All doubts should be removed. President Wilson's request for advice on the subject should be heeded."

A report of the Committee on the Maintenance of Resale Prices, which was in effect a report of progress on the difficult assignment which was given that body, was made by Chairman Paul T. Cherington. The committee was ordered to continue its investigations under direction of the board of directors, with a view to a referendum on the subject.

The portion of the program set apart for a discussion of successful methods of commercial organizations was occupied by Mr. F. H. Rike, president of the Greater Dayton Association, and Mr. Carl J. Baer, secretary of the Little Rock Chamber of Commerce. They gave the convention interesting details of the work with which they are connected.

"Trade Expansion and the European War," was discussed by Mr. Edward A. Filene, of Boston, vice-president of the International Congress of Chambers of Commerce. His conclusions were that a nation-wide discussion of peace terms at this time would certainly tend to the ultimate settlement of the war on a basis which would not leave the world an armed camp; that there is needed just and staple conditions of ocean transport and that pioneer work must be done for American Trade expansion by American banks and bankers. Mr. Filene advanced the novel idea of an insurance of trade contracts whereby foreign buyers will get the goods they have ordered at the time they have ordered them, or else a substantial indemnity. He also advanced the idea of a "quality stamp" which will give to the ultimate consumer assurance that the American goods he buys under it are reliable and trustworthy.

John H. Fahey, of Boston, was re-elected president of the National Chamber. Harry A. Wheeler, of Chicago, and A. B. Farquhar, of York, Pa., were elected honorary vice-presidents; Henry L. Corbett, of Portland, Ore., and Robert F. Maddox, of Atlanta, Ga., were re-elected as vice-presidents. John Joy Edson, of Washington, D. C., was re-elected treasurer, and R. G. Rhett, of Charleston, S. C., was elected chairman of the executive committee.

Contemporary Opinion

The Full Crew Law.

(From the "Bache Review.")

IN 1910, during the Taft administration, when the railroads sorely needed an advance in rates and filed schedules for a ten per cent increase, the President allowed his Attorney-General to block the advance with an injunction. Rates were not increased and four years of hard times followed, definitely due to the declining prosperity of railroads. Had this increase been allowed at that time, actual figures show that several of the roads which have gone into bankruptcy would have been prosperous to-day, because of the sufficient earnings to carry their interest charges which larger rates would have given them. But even ex-President Taft has changed his viewpoint on this subject, and in his speech at Indiana University, he defended the railroads by saying that "the close and absolute supervision over the management and the restriction upon the rates, together with the increase or maintenance of wages through the power of trades unions, have ground the railroads between the upper and nether millstones, and prevented a fair return upon their capital. The solvency of some of them is threatened, and all this to the detriment of the business of the country, and especially to the comfort and happiness of wage-earners, dependent upon normal business and normal demand for labor."

Increased rates for the railroads, when the conditions require it, was urged by Mr. Taft. He said the full-crew laws that "imposed upon the railroad companies the burden of employing unnecessary labor, an exaction due to the undue and unjust influence exercised by the trade union over legislatures" should be repealed.

The "Full-Crew Law" is one of the unwarranted, unreasonable and unnecessary burdens placed by labor organizations upon railroads. It obliges the roads to increase their train crews, whether the peculiar conditions require it or not. Many states were coerced into passing this law when the anti-corporation campaign was in full hue and cry. And even now the attempt is being made. In Texas the law is not yet upon the statute books, but the legislature is fomenting it, and the Texas Farmers' Union comes out in bitter opposition. The argument is conveyed in the resolution passed at the last annual convention that "the farmers and producers in the end pay approximately 95 per cent of the expense of operating the railroads, and it is, therefore, to the interest of the producers that the expenses of the common carriers be as small as is possible, consistent with good service and safety."

The resolution then calls upon law-makers, courts and juries to oppose the passage of the Full-Crew Bill now before the legislature, and goes on to voice some pretty pertinent truths about the farmer. It says that legislators, "in their zeal for rendering their fellow associates a service, sometimes favor an increase in the expenses of industry, without due regard for the men who bow their backs to the summer sun to meet the payroll. But these law-makers, while making a record for themselves, rub the skin off the shoulders of the farmer by urging the legislature to lay another burden upon his heavy load. And under the lash of 'be it enacted' goad him on to pull and surge at the traces of civilization, no matter how we may sweat, foam and gall at the task."

"When legislatures 'cut a melon' for labor they hand the farmer a lemon. The farmers of the United States are not financially able to carry 'dead heads' on their payrolls. Our own hired hands are not paid unless we have something for them to do and we are not willing to carry the hired help of dependent industries unless there is work for them."

Thus the farmers, in homely language, have exactly stated the railroad case.

And it seems that all over the country the farmers are rising against this campaign against capital and corporations, having had their eyes fully opened to the fact that all this reacts against the farmers' prosperity.

The latest indication of this is the friendly attitude of farmers and producers in Oregon, toward business. The Oregon Irrigation Congress, one of the strongest associations of farmers in the State, has adopted a set of resolutions reciting the vital importance to the irrigated sections of Oregon, of having transportation facilities extended and improved, stating that outside capital will be invested in railroad construction only as the State is found to be an inviting and profitable field of investment, and strongly recommending "the modification of such restrictive legislation as has been applied to railroad enterprises and found to be so burdensome as to destroy profits from railroad operation and discourage the investment of capital in betterment and extension of transportation facilities."

The farmers of Missouri swept the Full-Crew Law off the statute books of that State, but it still remains in the great State of New York. Our legislature was evidently prompted to pass this law in response to the demand of railroad employes' organizations.

In view of the country-wide public opposition which is now manifesting itself, New York State should have the courage to repeal the law. If it has not or wishes to avoid its responsibility to the people, the law-makers should at least, by appropriate legislation, refer the question to the voters of the State, as was done in Missouri, and let them determine whether this great injustice should or should not be remedied.

The Value of Courtesy.

(From the "Southern Pacific Bulletin.")

"TALKING about the necessity of securing additional revenue for the Company," said a conductor on the Western Division the other day, "is all very well, but how about conductors and brakemen? They have duties to perform, and how are they going to participate successfully in the campaign for more business?"

In answer to which query it is respectfully suggested that trainmen have almost limitless opportunities for securing additional patronage. And to be successful in this direction calls for no deflection of duty—no time taken from the work for which they are especially engaged and held responsible.

They can stimulate traffic over our lines in these three ways: First, by being courteous and pleasant at all times; second, by keeping awake to the possibility of passengers contemplating other trips; third, by working in co-operation with the agents.

The trainman is constantly in touch with the traveling public. He personifies the Southern Pacific Company to those with whom he comes in contact. It is on him that the passenger places the responsibility for a safe journey; to him that the sometimes-bewildered patron seeks information as to this or that. The passenger expects courtesy from the conductors and brakemen and if he gets it, the trainman himself and the company he represents rise in the passenger's estimation. He goes away with a good impression on leaving the train. The courtesy and pleasantness of the railroad man have added to the pleasure of his trip.

Should the trainman be gruff or discourteous, much of the pleasure of the passenger's trip has been marred and the recollection will live for a long time, thereby driving business from the Company. All of us get out of bed on the wrong side some mornings. If we didn't we wouldn't be human. But in cases where pleasantness is vital to our best interests, we can force ourselves out of the grumps. A trainman may sometimes wonder at the apparent foolishness of a question, but let him remember that the other man is paying a tribute to his intelligence when he puts the query.

Up-Lift for the Hired Man.

(From the "New York Times.")

A RAILROAD official who believes there is no reason why the benefits of Government by commission should not be extended to the farmer as well as to the carrier has prepared a draft of a "farming code" providing for the regulation of prices, service requirements, and a sort of "full crew" law, with several "welfare" clauses for the hired man. The bill is as follows:

"Only one price for a given commodity shall be lawful. A farmer desiring to change a price shall file a schedule thereof with the Commission hereby created, which shall go into effect thirty days thereafter, unless suspended by the Commission at the instance of any consumer.

"No prices shall be increased, however, except upon due proof, the burden whereof shall be upon the farmer, that existing prices are confiscatory of his goods and gear. In its discretion the Commission may refuse to permit any such increase until a valuation by its engineers and accountants shall have been taken. In such valuation the farmer shall have no credit for past profits invested in new fields or improved structures, but shall be allowed only original cost plus borrowed money invested.

"Commodity, as used herein, includes all grains, vegetables, live stock, dairy articles, excepting sand, gravel and manure.

"Every hired man shall work eight hours only a day, not including the Sabbath, and shall not recommence work unless he has completed a period of not less than eighteen hours absolute rest and quiet. He shall not work on the Lord's Day nor on legal holidays nor on Jack Love's birthday.

"Every farmer shall hire one more hired man than his work requires.

"The only permissible exceptions to the two foregoing sections shall be periods of stress resulting from earthquake, Halley's Comet, or European invasion.

"All wagons and all poles and double trees shall be provided with couplers, coupling by impact, so that the hired man need not go between the wheels of the wagon and the heels of the horses.

"All wagons shall be supplied with suitable brakes, grabirons, stirrups, and platforms of standard dimensions to be fixed by the Commission.

"All bulls, when moving on the highway or in unfenced areas, shall be equipped with a bell of not less than fifty pounds weight, a steam whistle, and an electric headlight of at least 1,000 candle power.

"Sheds shall be built over all fields where hired men have to work in summer.

"All field engines and machinery shall be fenced in, all belting shall be encased in metal housings and all grindstones, churns, hay-cutters, bull's horns, and other moving parts shall be strongly encased in sheaths for the protection of the hired men.

"All barns, sheds and other outbuildings shall in cold weather be adequately heated and at all times shall be well lighted and policed.

"If a calf is delayed in arriving or is born dead the farmer shall instantly provide another cow whose calf shall be born that day.

"The Commission's inspectors shall weekly inspect all gasoline automobiles. If a cylinder is missing the farmer must find it before he runs on the road again.

"The right to mortgage real estate is a franchise reserved to the State. No farmer shall make any mortgage nor incur any indebtedness extending over a period of more than one month without the written approval of the Commission, obtained upon petition and hearing and upon paying the State Treasurer 10 cents for each $100 of such indebtedness. Indebtedness incurred without such consent shall be void.

"To enforce this act a Commission of five persons shall be selected by the Governor with a view to placating as many shades of political opinion as possible. No Commissioner shall, however, be deemed disqualified by lack of previous political or other experience."

The Business Revival.

(From "Greater New York," the official organ of the Merchants' Association of New York.)

IN the course of his speech at the recent Unemployment Meeting of the Members' Council of this Association, Judge Elbert H. Gary, Chairman of the Board of Directors of the United States Steel Corporation, said:

"The extreme optimist of to-day, if the people of this country take advantage of their opportunities, will, ten years hence, be considered to have been very conservative in his estimate of future prosperity."

This prediction from the head of the greatest single business enterprise in the country, has attracted wide attention. Judge Gary is not given to making rash or ill-considered statements, and for that reason his forecast of the future carries great weight.

He is not alone among the leaders of industry in predicting the approach of a great industrial and commercial expansion. Others from day to day are giving utterance to similar views. The men whose responsibilities compel them accurately to interpret business signs are unanimous in their belief that prosperity is at hand.

Enough is Enough.

(From the Thomas, (Okla.), "Tribune.")

WITH many of our railroads in the hands of receivers, quite a number not paying operating expenses, it seems to us that it is about time for the people to call a halt to adverse legislation. We feel confident that the interests of the people are sufficiently safe-guarded by the Corporation Commission which wields the wand of a despot over the floundering remains of what few roads we have left, without the legislature adding burdens in addition to those the railroads are already carrying. There has been talk of a "Car Limit Bill," "A Hospital Bill," "A Full Crew Bill," and others of a similar nature, which merely add expense to a business which has been greatly crippled by two cent fare and minimum freight legislation. Even President Wilson seems to think it is time to let up and give the railroads a chance to recover from former radical legislation. The railroads, if given a fair shake, can and will do more for our young and growing state than any corporations operating within the state. However, the railroads must be given fair treatment and encouraged to come to the state by fair laws and just rates. A railroad is like a cow in many respects. When you give a cow good treatment and plenty of feed, she in turn will respond with a good yield of milk. Abuse her, and she will hump up her back and milk will cost you about a cent a drop. So it is with railroads. Given fair and equitable treatment, a railroad will do its best to develop a state and the revenue derived from a profitable business will largely be used to improve the trackage and equipment. The same railroad abused by radical legislation will become a joke and rapidly deteriorate. Give the railroads a rest! Enough is enough!

Some 1915 Dont's.

(J. F. Simms, in the "Frisco Man.")

DON'T leave ink stands uncovered—Half of the ink purchased is lost by evaporation.

DON'T use full sheets of paper where half sheets will do—It means 50 per cent saving in stationery.

DON'T order any more stationery than will last 30 days—It means waste if you do.

DON'T throw away blank or spoiled forms—Cut them up and use back for scratch pads or clip paper.

DON'T send messages when you can get your party on the telephone—It saves telegraphing and unnecessary wires and avoids delay.

DON'T fail to use symbol numbers when you do send telegram.

DON'T be afraid to give a little more information than is asked for—You sometimes have important information that may avoid claims and litigation.

DON'T let your mail hang over till to-morrow—You will have two days' mail to handle—Answer it when you get it and save delay and criticism for yourself and others.

DON'T fail to act courteously to everyone—You may be talking to a prospective shipper.

DON'T get in a rut—This is the day of efficiency—Efficiency has no set rules and certainly does not travel along one line and especially along the line of least resistance—If you have an idea that means saving or reduction in work send it to your superintendent or to T. A. Hamilton, Supervisor of Efficiency, St. Louis, Mo.

DON'T forget our slogan—$200,000.00 Claim Reduction."

DON'T forget "Safety First."

DON'T fail to call this to the attention of all employes.

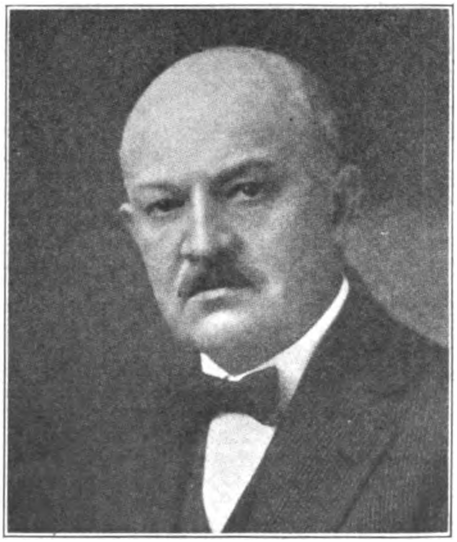
Personal

Larz A. Jones.

LARZ A. JONES, who on February 1st, was elected president and general manager of the Queen and Crescent Route, was born on April 19, 1860, at Cincinnati, Ohio. He was educated in the Cincinnati Public Schools and entered railway service in 1878, with the Cincinnati Southern Railway Company. He remained with this Company and its successors, the Cincinnati Railroad Company and the Cincinnati, New Orleans and Texas Pacific in a minor position until August, 1883, when he became traveling auditor of the Cincinnati, New Orleans and Texas Pacific. In 1884, he was made chief clerk of freight accounts of the Queen and Crescent Route and in 1890, became assistant comptroller of this Route. In 1895, he was further promoted to the position of auditor and removed to New Orleans when the general offices were transferred from Cincinnati to that city. He held the last named position until August 1, 1907, when he became vice-president and comptroller from which he was elected to his present position.

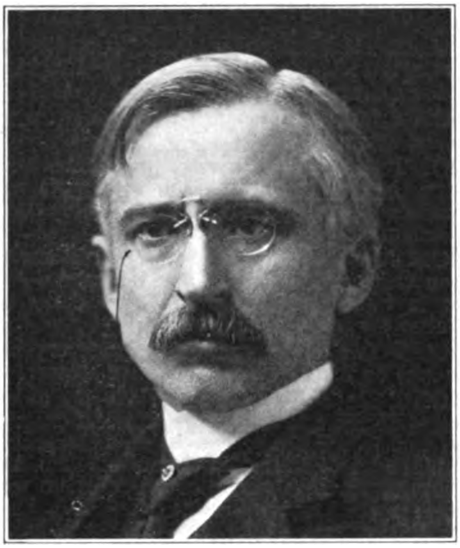
C. S. Thomas.

WE take pleasure in presenting herewith a portrait of Mr. C. S. Thomas, a sketch of whose career appeared in the January issue of the "Railway World." Mr. Thomas, in addition to his duties as freight traffic manager of the Baltimore and Ohio Southwestern and the Cincinnati, Hamilton and Dayton Railroads, has been appointed general traffic assistant of the Baltimore and Ohio Railroad, in which capacity he will have charge of matters referred to him



C. S. THOMAS.

and in connection with which he will represent the general freight traffic manager and Mr. George F. Randolph, first vice-president.



Ira A. Place.

IRA A. PLACE, who on January 1st was appointed vice-president of the New York Central Railroad Company in charge of the Law Department and of the Land and Tax Departments, was born in New York in 1854, and educated at Alfred and Cornell Universities. He studied law and was admitted to the bar at Buffalo and in October, 1883, came to New York City with the general counsel of the New York, West Shore and Buffalo Railway Company. In March, 1886, he entered the Law Department of the New York Central and Hudson River Railroad Company and in 1905, was appointed general counsel for all New York Central Lines east of Buffalo. In December, 1906, he was made vice-president of these lines, which position he held at the time of his recent appointment.

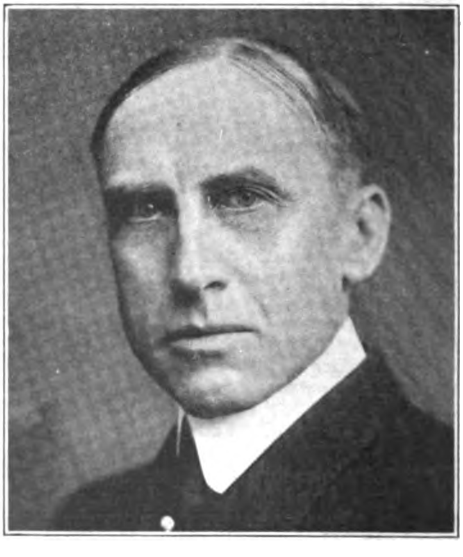
S. H. Church.

S. H. CHURCH, who has been elected secretary of the Pennsylvania Lines West of Pittsburgh, was born in a log cabin in the wilderness of Missouri, near the present town of Hamilton, on January 24, 1858. A year later his parents returned with him to Pittsburgh, where the family had lived since 1822. The death of his father required him to cut school and go to work at the age of eleven, as a cash boy in the Joseph Horne Company department store. After a few months he was, for a short time, a messenger for the Western Union Telegraph Company. He then went to school for three years, until he was fifteen, during which time he had attended the preparatory school for Bethany College, at Bethany, West Virginia. His next employment was as a clerk in the glassware store of the O'Hara Glass Works, and, as there were no telephones, he made himself a telegraph operator on the line which connected the office with the factory. On August 1, 1875, he entered the service of the Pennsylvania Lines West of Pittsburgh as a messenger in the Law Department. Promoted to a clerkship, he learned shorthand and was used by his employers as a court stenographer in special cases. After four years in the Law Department he was transferred as stenographer to the office of the general superintendent of the line between Pittsburgh and Columbus, Ohio. On January 12, 1880, he went to Columbus as chief clerk to the general manager. On January 1, 1884, he was appointed superintendent of transportation of the Southwest System, with office at Columbus. On January 1, 1889, his office was consolidated with other departments and he returned to Pittsburgh in charge of car distributions on both the Northwest and Southwest Systems. On January 1, 1898, he was appointed assistant secretary, and on February 1, 1915, he was elected secretary.

In 1894 he completed his book, entitled: "Oliver Cromwell: A History," which had occupied the whole of his leisure for the preceding six years, and was published in New York and London by G. P. Putnam's Sons. This book is now in its sixth edition. Soon after its appearance he received honorary degrees from Yale (M. A.), the University of Pittsburgh (LL.D.) and other colleges. He has done other literary work. He has also compiled "The Corporate History of the Pennsylvania Lines West of Pittsburgh," in fifteen volumes.

While holding his office at Columbus, he was appointed a member of the staff of the Governor of Ohio, with the rank of Colonel, and had charge of some 3000 troops that were assembled at Cincinnati in 1884 to put down a riot there, in the course of which the court house and all its valuable records were destroyed. Governor Headly and the other members of the staff presented him with a sword of honor in recognition of his work on that occasion.

When Andrew Carnegie began the establishment of the Carnegie Institute at Pittsburgh, he appointed Mr. Church one of his Trustees, and he has always taken an active part in the development of that philanthropic work, and is now the President of the Board of Trustees.



S. H. Church.

He is a member of the following Clubs: Duquesne, University, Athletic, Junta, Pittsburgh Golf, Pittsburgh Country, Allegheny Country, Americus Republican, Pittsburgh; Authors, New York; and National Liberal (honorary), London.

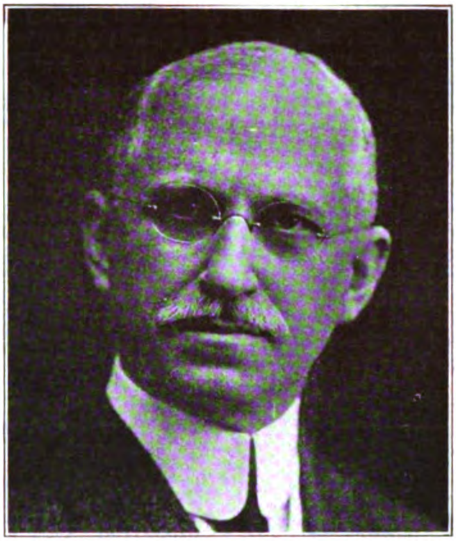
Bosco B. Young.

BOSCO B. YOUNG, who has recently been appointed assistant secretary of the Pennsylvania Lines West of Pittsburgh, was born at Caldwell, Noble County, Ohio, October 18, 1881. He entered the service of The Cleveland and Marietta Railway Company as messenger in the auditor's office at Cambridge, Ohio, on August 1, 1898. Shortly thereafter he was advanced to the position of clerk in that office, and on January 1, 1900, when the Pennsylvania Company took over the operation of the Cleveland and Marietta Railway, he accepted the opportunity to come to Pittsburgh and was assigned a position in the office of auditor of freight receipts of the Pennsylvania Lines. April 1st of that year, he was transferred to the comptroller's office as file clerk and stenographer, where he remained until the spring of 1901, when he resigned to accept service with the American Sheet Steel Company at Cambridge, Ohio, as time clerk and paymaster. In January, 1904, he again took service with the Pennsylvania Lines as stenographer in the office of the first vice-president, at Pittsburgh, Pa. On February 1, 1913, he was made chief clerk in that office, which position he retained until February 1, 1915, when he was appointed assistant secretary, Pennsylvania Lines West of Pittsburgh.

B. B. YOUNG.

C. J. Kulp.

C. J. KULP, who has been elected treasurer of the Lehigh Valley Railroad, has been an assistant treasurer of the company. J. M. Baxter, who retires as treasurer, requested that he be not re-elected. Mr. Kulp has been connected with the Lehigh Valley for twenty-eight years. He entered the accounting department as a clerk in the disbursing office under Isaac McQuilkin, who was auditor of the railroad at the time. In 1903, the treasury department of the railroad was reorganized, Mr. Kulp assisting in this work. He was selected as teller for the reorganized department, a position he held four years when he became chief clerk of the department, and in 1910 he was elected an assistant treasurer. His latest move is one more indication of the civil service methods adopted by the Lehigh Valley for making promotions. As treasurer of the company, Mr. Kulp will have Mr. G. W. Wiley as an assistant. The latter was elected to that position a year ago.



C. J. KULP.

Michael J. Powers.

MICHAEL J. POWERS, who has been appointed general passenger agent of the Delaware and Hudson Company, with headquarters at Albany, New York, succeeding

Augustin A. Heard, who resigned on January 1st. The new general passenger agent is a native of Albany and a graduate of the Albany Business College.

In 1900 he entered the employ of the Delaware and Hudson Company as a clerk in the office of J. B. Brownell, auditor of revenue. He remained in this department six months and then became stenographer to E. R. Willerton, chief clerk to Joel W. Burdick, general passenger agent. In 1905, when Mr. Heard was appointed assistant general passenger agent, Powers became his stenographer, and was placed in charge of the ticket room and the advertising department. In January, 1910, Mr. Powers was promoted to the position of chief clerk and five years later he succeeded Mr. Heard.

W. E. Williams.

W. E. Williams.

W. E. WILLIAMS, who has been appointed general manager of the Missouri, Kansas and Texas Railway, with headquarters at Parsons, Kans., was born in Houston, Texas, May 29, 1864; entered railway service on I. & G. N. in 1881 as clerk to roadmaster, serving successively in bridge department, clerk in superintendent's office, timekeeper, transportation clerk, chief clerk to superintendent transportation, to general superintendent, to general manager, as secretary to receivers, and as purchasing agent and general storekeeper. Entered service of the M. K. & T. in 1897, serving as chief clerk to general superintendent, as car accountant, appointed train master in November, 1901, superintendent September, 1902, general superintendent October, 1911, and general manager February 1, 1915.

J. F. Porterfield.

J. F. PORTERFIELD.

J. F. PORTERFIELD, who became general superintendent of transportation of the Illinois Central Railroad Company, with headquarters at Chicago, entered the service of this road in 1883, as messenger boy and since then has been employed consecutively in the capacity of yard clerk, telegraph operator and agent. In 1905, he was appointed trainmaster and in 1907, became superintendent. Five years later he was made general superintendent, which position he held at the time of his recent promotion.

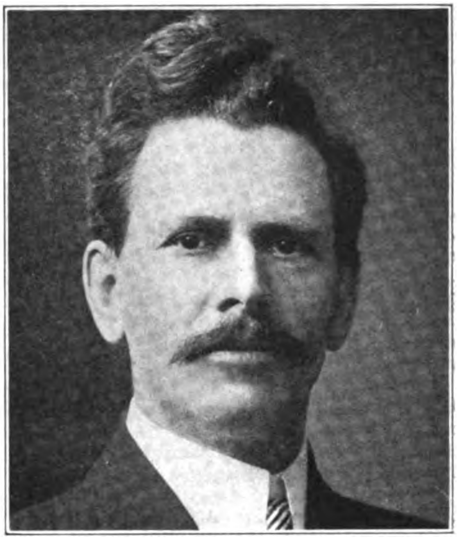
F. H. Wilson.

F. H. WILSON, who has recently been promoted to the position of general superintendent of the New York Central Railroad, west of Buffalo, was born November 12, 1873, at Indianapolis, Ind. He was educated in the public schools of Indianapolis and entered railway service in 1887 as messenger for the Indiana, Bloomington and Western Railway.

F. H. WILSON.

From 1888 to 1894, he was clerk to the trainmaster and to the superintendent of the same road and of the Cincinnati, Indianapolis, St. Louis and Chicago Railway. From 1894 to 1902, secretary and chief clerk to general superintendent, Cleveland, Cincinnati, Chicago & St. Louis Railway, successor to the Cincinnati, Indianapolis, St. Louis & Chicago Railway; to December 1902, train master of Peoria & Eastern Division, same road; January, 1903 to January, 1904, special representative to general manager, Lake Shore & Michigan Southern Railway; February, 1904, to April, 1905, trainmaster of same road at Toledo, Ohio; April to November, 1905, assistant division superintendent, same road at Chicago, Ill.; November, 1905, to January, 1910, superintendent Western Division, same road, at Chicago; January, 1910, to January, 1915, assistant general superintendent, same road.

Edward J. Guthrie.



E. J. GUTHRIE.

EDWARD J. GUTHRIE has been appointed superintendent of the Southern Division of the Central Vermont Railroad and has also been made superintendent of the Central Vermont Transportation Company, with headquarters at New London, Conn. Mr. Guthrie was born March 1, 1866, at Erin, Ont., Canada, and was educated in the country schools of Western Ontario. He began railway work on October 1, 1899, with the Grand Trunk as a switchman, remaining in that position for a year and a half. He was then telegraph operator for nine years; agent at various places on the Grand Trunk for nine and one-half years, and in 1907, entered the service of the Central Vermont as freight agent at St. Albans, Vt. Three months later he was transferred to Palmer, Mass., and subsequently served at Brattleboro, Vt. He was then appointed general agent of the same road at New London, Conn., four months later he was transferred to New York as agent of pier 29, East River, and now becomes superintendent of the Southern Division of the same road, also superintendent of the Central Vermont Transportation Company, in charge of steamers operating between New London and New York, with headquarters at New London, Conn.

Obituary

Ellery S. Allen, formerly for many years general agent of the Cromwell Steamship Company, at New York, died of pneumonia on January 31st, at his home in New York, at the age of 78. Mr. Allen retired from active work in 1907.

John W. Anderson, formerly superintendent of the Wellston and Delphos Division of the Cincinnati Hamilton & Dayton Railway, at Chillicothe, Ohio, died at Union City, Ind., aged 56 years.

John M. Brewer, freight claim agent of the Southern Pacific Company, died at a sanitarium in San Francisco, January 19th. Mr. Brewer was born December 7, 1868, at Springfield, Ill.

Thomas L. Chapman, formerly superintendent of motive power of the Chesapeake and Ohio Railway, died on December 30th, at the home of his son in Caldwell, N. J., aged 71 years.

Lorenzo S. Coffin, formerly a member of the Iowa Board of Railroad Commissioners, died at Fort Dodge, Iowa, on January 17th, aged 91 years. Mr. Coffin will be remembered by older railroad men, and especially by the older members of the railway brotherhoods, by reason of his activity, in the early nineties, in the propaganda for the federal safety appliance laws. Later he was an apostle of temperance among railroad men and a promoter of the "white button" movement.

Alphonse Feldpauche, who was formerly chief engineer of the Philadelphia, Wilmington and Baltimore, and later secretary of the Association of Transportation Officers of the Pennsylvania Railroad, died on January 5th, at Philadelphia, Pa., at the age of 66. Mr. Feldpauche remained in charge of the engineering department of the P. W. and B. for some years after the road came under the control of the Pennsylvania. He was appointed secretary of the transportation officers' association in 1903.

John Foreman, formerly bridge and building superintendent of the Philadelphia and Reading Railway, died at Pottstown, Pa. January 9th, at the age of 92 years. At the time of his retirement a few years ago, he had been serving continuously in the same position for sixty years.

Christopher S. Gadsden, second vice-president of the Atlantic Coast Line, with headquarters at Charleston, S. C., died at Summerville, S. C., on January 12th. He was born on August 15, 1834 at Summerville, and was educated at the South Carolina Military Academy. He began railway work in 1853, as rodman in an engineer corps of the New Orleans & Great Northern, now a part of the Illinois Central. He was subsequently engineer on the Franklin & Warren, now a part of the Erie and later was in the service of the Port Royal & Augusta, in South Carolina, now a part of the Charleston & Western Carolina, and of the Charleston & Savannah. He was superintendent of the Charleston & Savannah until October, 1900, when he became president of the same road. Mr. Gadsden was also third vice-president of the Atlantic Coast Line to November, 1902, and since that time was second vice-president of that road.

John B. Gillett, formerly general freight agent of the Boston & Maine, until about 1871, died on February 2nd, at his home at Malden, Mass., at the age of 85.

Edmund P. Henderson, formerly a master mechanic of the Southern Pacific Company, died at San Antonio, Texas, on January 4th, aged 75 years.

A. B. Hinkle, assistant to division engineer of the Chicago Division of the Baltimore & Ohio, died at his home in Albion, Ind., on January 2nd. Mr. Hinkle had been continuously in the service of the B. & O. since 1885.

Samuel M. Inman, formerly a director of the Southern Railway, died on January 12th, at Atlanta, Ga.

Chauncey Ives, formerly chief engineer of the Cumberland Valley Railroad, and later engaged in construction work on the tunnels in New York City, died on January 4th, at Hood River, Oregon.

Thomas C. Keefer, one of the most prominent civil engineers of Canada, died at his home in Ottawa, January 7th, at the age of 94. He commenced his career as an engineer at the age of 17 on the Erie Canal. He was engaged for several years on the Welland Canal, and had a prominent part in the improvement of the Ottawa and St. Lawrence Rivers. He took part in the preliminary surveys for the Grand Trunk between Montreal and Toronto, and in the preparation of plans for the Victoria bridge at Montreal. Besides being an eminent engineer, he was a capable writer and his "Philosophy of Railways," published in 1849, had a marked influence on the policy of the Canadian government. He had been a president of the American Society of Civil Engineers, and was one of the founders of the Canadian Society of Engineers in 1887.

John B. Laurie, purchasing agent and general storekeeper of the Central Vermont, with headquarters at St. Albans, Vt., died on January 16th, at his home in that city after an illness of many months. Mr. Laurie was born on February 22, 1862, at Sarnia, Ont., and began railway work with the Grand Trunk. He served as storekeeper on the Grand Trunk at London, Ontario, until September, 1899, when he left that road to enter the service of the Central Vermont and since that time until he was compelled on account of poor health to give up active work had been purchasing agent and general storekeeper of the Central Vermont, with headquarters at St. Albans, Vt. Mr. Laurie is survived by one sister, who is a resident of St. Abans.

John M. Brewer, freight claim agent of the Southern Pacific at San Francisco, Cal., died in that city on January 18th.

Sidney B. Liggett, secretary of the Pennsylvania Lines West of Pittsburgh, died on January 9th at his home in Pittsburgh, Pa., at the age of 65. He entered the services of the Pennsylvania Company in 1871, as a clerk in the auditor's office, and since February, 1881, was secretary of the Pennsylvania Lines West of Pittsburgh.

Joseph McCabe, formerly from February, 1898, to June, 1906, vice-president and general manager of the Washington & Columbia River, now a part of the Northern Pacific, died recently at the age of 59. He began railway work in 1870 with the Chicago, Milwaukee & St. Paul, and was consecutively telegraph operator and agent on that road. He subsequently served as train despatcher and chief train despatcher on different roads, until 1888, when he was appointed superintendent on the Northern Pacific, and in February, 1898, he became vice-president and general manager of the Washington & Columbia River.

James McIntyre, for many years master carpenter of the Erie Railroad, at Cleveland, Ohio, died at his home in Miami, Fla., January 4th, and was buried in Miami, January 8th. Mr. McIntyre retired from railway service a number of years ago, owing to failing health, moved to Florida, and took up the business of fruit growing. He was a member of the American Railway Bridge and Building Association and took a prominent part in the work of that organization.

Gurdon William Merrill, assistant to general manager of the Norfolk & Western Railway, died at his home in Norfolk, Va., January 27th, aged 69 years.

A. W. Montague, superintendent of terminals of the Houston & Texas Central at Fort Worth, Texas, was shot on January 20th, while in his office, by a discharged switchman, and died within a short time.

Peter T. Nichols, formerly general superintendent of the Union Pacific Railroad, died at his home in Indianapolis, Ind., January 29th, aged 84 years.

William D. Scott, general manager of the Spokane, Portland and Seattle Railway, Oregon Electric Railway, Oregon Trunk Railway, Spokane and Inland Empire Railroad, and United Railways Company, died January 21st, at his home in Portland, Ore. He was born at Des Moines, Iowa, October 4, 1858. Mr. Scott began railroad work as a brakeman at the age of 17, with the Chicago, Rock Island and Pacific Railway. He went with the Great Northern Railway and served as freight conductor, trainmaster, assistant superintendent and division superintendent at various points. He was general superintendent of the same road at St. Paul, Minn., and later was made general superintendent at Seattle, Wash. He was appointed general manager of the Spokane, Portland and Seattle and associated lines in January, 1914.

The American Commerce Association

NOTE.—The following paragraphs deal with a new national association of traffic men which has recently been organized at Chicago. The object of the organization is to set standards of efficiency for employers and employes, as it is believed that the present tremendous waste of time and money in traffic work, demands employment of trained men. The RAILWAY WORLD is in entire sympathy with this movement, as it believes it will not only develop more harmonious relations between those who employ and those who operate the railways, but will serve to more fully inform the business men of the country regarding rate matters and thus enable them to more intelligently and economically employ our transportation agencies. In the future there will be a new department in the RAILWAY WORLD devoted to the traffic efficiency clubs of this Association, located in the various cities of the country. Under this heading practical railroad and industrial traffic matters will be discussed.

THE ORIGINATOR OF TRAFFIC TRAINING.

THE American Commerce Association's traffic efficiency docket No. 20, is creating something like a real sensation among those interested in the subject. For example, W. B. Grieves, traffic manager of the S. L. Allen Company of Philadelphia, recently referred to this docket as "one of the greatest pieces of work of its character which has ever been outlined by any body of men." Its object has been to present a scientific, cumulative synopsis of the necessary practical traffic information required by the present and future traffic men of America, and in this effort it has proved highly successful. It sets a new standard of efficiency for traffic men and is the result of the combined efforts of the advisory council of the American Commerce Association.

THE NEW NATIONAL TRAFFIC EFFICIENCY ORGANIZATION.

The editor-in-chief of Traffic Efficiency Docket 20, is Elvin S. Ketchum, A. B., Pd. M., the originator of the scientific and systematic study of practical traffic work—a man who by ceaseless effort and continuous toil for about twelve years has brought together in permanent form for the first time an Encyclopediac of American and Foreign Trade—a Traffic Library of 25 volumes covering every practical subject, demanded by those who are daily engaged in handling our greatest traffic problems.

APPRECIATION BY TRAFFIC MEN.

There are a multiplicity of traffic problems which confront the practical traffic man in handling his daily affairs. These problems would be more easily solved if the necessary authoritative information was quickly available. Research for the required information results in an excessive waste of time as well as the utilization of mental and physical energy which should be used to better advantage. An authoritative source of information, therefore, is at once appreciated.

As Mr. C. C. McCain, chairman of the Trunk Line Association, says: "It is a source of gratification to every progressive railway traffic official in the country to know that a reputable institution such as the American Commerce Association has provided a training service which will lead to efficiency in the now recognized essential channels. The plan appears to be the broadest, most complete, detailed tariff, rate and traffic training that has been devised, and the general system of training is equal to that of the best technical schools, and evidently supplies that which has long been wanting in the transportation field, i. e., accurate authoritative and practical information in the interpretations of the interstate commerce law and the regulations and requirements affecting the carriers."

The president of the National Industiral Traffic League, Mr. H. G. Wilson, traffic commissioner of the Toledo Commerce Club, points out the importance of taking advantage of the pioneers in traffic work. "The comprehensive scope of the subjects dealt with and the thoroughness with which they are treated," says Mr. Wilson, "no less than the active co-operation of efficient, successful and practical traffic men composing the Advisory Traffic Council, Board of Contributors and Editors and Consulting Traffic Experts, leads to the conclusion that the Association will be better equipped to advance the efficiency of traffic men than any other institution that I know of, because it is by taking advantage of the experiences of the pioneers in any lines that we accomplish sure results."

ELVIN S. KETCHUM, A.B., PD. M.
President of the American Commerce Association.

Mr. J. E. Gorman, first vice-president in charge of traffic of the Rock Island Lines, after looking through Traffic Efficiency Docket 20, expressed the opinion that the Association was offering to those who desired, a splendid medium for acquiring a practical knowledge of traffic matters, and Mr. Ira S. Bassett, commissioner of the Pittsburgh Commercial Club, points out the thoroughness in which all practical traffic subjects are treated, as follows:

"It occurs to me that it (the Library) covers every practical subject that has to dc with traffic work. In fact, it is the most thorough and complete analysis of all the practical phases of transportation that has ever come to my attention. It begins with the origin and flow of traffic, shows how to classify various articles of commerce, presents a key to the tariffs, which names the legal rates, explains the various special freight services to which the shipper is entitled, shows how to prepare the goods for shipment and route them via the best gateways and finally covers the rights and duties of shippers and carriers under the interstate commerce and state laws."

THE TRAFFIC LIBRARY.

In 1908 when the interstate commerce law was amended, making the railroad tariffs the freight rate laws of the country, requiring all charges of every kind to be published, Mr. Ketchum saw at once that the amendment would place in the hands of men handling traffic work the responsibility of expending over $2,000,000,000 annually. He saw that a new field of business had been created, requiring men qualified to determine transportation costs accurately and handle efficiently all matters coming under the direction of the traffic department.

When preparing a book on "Freight Economics" he went to many practical traffic men with the view of determining the nature of the problems coming up in their daily work. He found that about 50 per cent of those who were responsible for freight charges were depending upon someone else for their information, and that no one man possessed all the necessary information; that the subject had to be divided into its elements and that the tens of thousands of necessary traffic facts must be secured from those who were engaged in practical work.

Mr. Ketchum has been studying the requirements of practical course of training in interstate commerce for the past twelve years. He has discussed interstate commerce with a large percentage of the most prominent traffic men in America. During the time he has been studying interstate commerce, he has accumulated one of the most complete libraries and files of practical information on interstate commerce in the country. He has been collecting practical information during the past seven years on various specific traffic subjects. During the past three years he has been in correspondence with about 300 traffic experts and has compiled about ten thousand pages of manuscripts thoroughly covering the important problems of the traffic man.

Mr. Ketchum, at the age of 16, entered the New York State Normal College for the training of teachers and graduated in 1892. In 1894 he was appointed director of the New York State Teachers' Training Class at Stanton Seminary. In 1895 he won a $540 scholarship in Union University, where he first became interested in transportation, while pursuing a senior course of lectures under Dr. Sergent Hoffman who had just returned from Europe where he had made a comparative study of the transportation services of Continental Europe and America. The fundamental principles of transportation costs in relation to selling prices, profits, territorial competition and various economic principles were taken up.

Being desirous of finishing his training for the vocation of an educator, Mr. Ketchum entered New York University and graduated with the degree of A. B. in 1903. He then took a post-graduate course in education in the University School of Pedagogy of New York University, for normal school teachers, school principals and superintendents of schools and graduated with the degree of Pd. M., or master of pedagogy, thus attaining a high standard as an educator.

Mr. Ketchum's educational training particularly fitted him to work out a practical course in interstate commerce, railway traffic and traffic management work. In order to specialize for the highest work of an educator, he pursued courses in the departments of education of New York University, Cornell University, Yale University, and Teachers' College of Columbia University. His laboratory educational psychology was taken under Dr. Charles Judd, now director of the School of Education of the University of Chicago.

For the purpose of determining how the mind acquires knowledge, and how enonomic adjustments are developed, his studies included all that bears on education from the history of philosophy and pedagogy, from experimental, genetic, analytical and physiological psychology, from the science of ethics, from the science of medical aesthetics and sociology, and from the principles underlying national school systems.

The fundamental facts, principles and laws gained from these studies of the physical and mental powers of man and how to develop them to the highest degree, gives the basis for educating men for greatest personal efficiency, and covers what is described by our leading universities as the necessary training qualifying an educator, to construct a course of study in accordance with modern methods of pedagogy. As Mr. Ketchum has had all this technical training he is especially well qualified to act as editor-in-chief of a scientific and systematic course of training in traffic work.

The success with which Mr. Ketchum met in applying his principles in his educational work is reflected in the following statement signed by all the members of a New Jersey board of education.

"The Board of Education take pleasure in stating that perhaps no greater strides have been made in the advancement of the schools than during the past year. This newly developed zeal, which cannot but have been visible and gratifying has come, it is believed by the Board, as a result of the system of education inaugurated at the instance of E. S. Ketchum.

"Mr. Ketchum was unanimously selected as supervising principal of the borough public schools in 1901, from about forty candidates. One of the features of the qualifications which induced the Board in its wise choice was the 'Rational System of Education' which Mr. Ketchum has worked out on the basis of the best modern educational philosophy and practice.

"His method is that of developing the best in the individual to the end that character may be expressed in terms of citizenship. This has resulted in an unusual awakening of interest among the students in all that pertains to the school work, as well as developing social responsibility."

MR. KETCHUM AS A BUSINESS MAN.

Mr. Ketchum left his work as an educator in 1903 to enter commercial life, when he became division manager of the Tabard Inn Library with offices at Buffalo, N. Y. In this division there were ten district superintendents and 190 special representatives under his management. He organized the Bodley Club and Tabard Inn Libraries in Pennsylvania, Delaware, Maryland, Connecticut, Virginia and New York State.

He then became general Western manager of the Tabard Inn Corporation in 1904. The division comprehended 600 towns and cities with branch offices under Mr. Ketchum's supervision at Minneapolis, St. Paul, Milwaukee, Detroit, Grand Rapids and Toledo, and with headquarters at Chicago. He operated 400 libraries in fifteen different States, aggregating a $150,000 business. While making shipments to about 400 different points he became interested in practical shipping problems and made a careful study of freight traffic work.

In 1906 he became general manager of Laird and Lee, publishers, Chicago. He had charge of the sales and foreign trade departments publishing and selling 500 titles of English, German, French, mechanical, electrical and scientific books.

Mr. Ketchum was then offered the editorship of *The Black Diamond Trade Journal*, the organ of the coal industry, a 54-page weekly publication. Mr. Ketchum wrote the editorials and compiled the Chicago coal market report and weekly coal trade review for the United States.

During Mr. Ketchum's connections with the business world many expressions relative to his absolute integrity, character, ability and qualifications have been made by representative business men. Donald A. Sage, president Sage and Company, Chicago, says: "Mr. Ketchum is a man of exceptional business ability, education and integrity. He has executive ability, and we cannot speak too highly of his honesty and reliability," asserts A. T. Murphy, general manager, The Black Diamond Company.

P. C. Richards, president, Richards, Ambler and Company, writes: "I consider Mr. Ketchum a first class busienss man in every respect, one who uses good judgment and is entirely honest." Mr. C. M, Moderwell, president, United Coal Mining Company, Chicago, says: "I consider him an unusually competent man of highest integrity," and Geo. E. Fink, of the State Bank of Chicago, writes: "I believe Mr. Ketchum to be honest and capable, a diligent man of good habits and exceptional business bearing."

Hunter W. Finch, president, Hunter W. Finch and Company, Chicago, says: "I believe Mr. Ketchum thoroughly reliable in every way, a man of good address, who easily gets acquainted with the better class of business men." E. C. Thurnau, president, The Class Periodical Company, Chicago, writes: "Have always regarded Mr. Ketchum as very capable and reliable as well as a hard worker," and Cuasis J. Beard, cashier, Fifth Avenue Bank, New York City, asserts: "Have known more or less of Mr. Ketchum for over ten years. He is ambitious and has shown commendable energy. I know nothing whatever against him."

Mr. H. L. Gleason, secretary, Hitchcock, Manufacturing Company, Cortland, New York, says: "I have found him one of the most industrious men I ever met, an upright Christian man," and Seymour Eaton, president of the Tabard Inn Corporation, Philadelphia, Pennsylvania, writes: "His records and accounts were found accurate. He is honest, trustworthy and ambitious, and had the distinction of creating the largest sales organization in a given time in our entire system."

THE FIRST TRAFFIC SCHOOL.

The first man in the United States to conceive the idea of a practical, systematic and scientific training for men, desirous of engaging in interstate commerce and traffic management work, was Mr. Ketchum in 1909, while he was editor of *The Black Diamond*, the coal operators' trade journal, where his duties brought him in direct touch with coal transportation matters.

In 1910 he established the Interstate Commerce School for training men for the higher traffic positions. After securing several enrollments the Interstate Commerce School was consolidated with the LaSalle Extension University as the Department of Interstate Commerce. As the instruction and methods of teaching were under the regular educational department of the university, Mr. Ketchum confined his attention to the enrollment of students for the university and built up a membership of about 12,000 in five years.

Mr. Ketchum has long been convinced that the key to the traffic situation is the freight tariff containing the legal rate. Which of the hundreds of thousands of rates shall be used on any given shipment? Without this knowledge a man is not equipped to do practical traffic work. Many colleges and universities have prepared some good books and treatises on general transportation interests. The practical traffic man, however, must know how to determine the transportation costs on various shipments between points in the United States and to foreign countries.

This information is only to be found in the brains of men who are actually engaged in rate computation work. Experience and personal knowledge must be transferred to the printed page. "Traffic Brains in Print" is what is demanded to-day. This is the technical knowledge the American Commerce Association has been compiling for several years. No other organization in the country is now in possession of this important information and the Association, therefore, should be in position to give the necessary information and training.

Mr. Ketchum has severed all connection with other organizations and is giving all his time, thought and energy to the development of the interests of the Association. His training and success as an educator specially qualifies him for this work, and as he is a member of the Traffic Club of Chicago, The Chicago Transportation Association, and the Traffic Efficiency Club of Chicago, he is constantly in touch with practical traffic men, who together with the members of The American Commerce Association should make the A. C. A. an important factor in the successful advancement of all traffic men.

PRACTICAL TRAFFIC INFORMATION VIA THE EXPRESS ROUTE.

Mr. Ketchum's problem as head of the American Commerce Association is: How can a traffic man acquire the necessary information in the shortest time, at the least expense and effort, and with the greatest degree of permanency and practical value? This Mr. Ketchum holds as an educational question which, in order to be successfully solved, should be governed by the following principles followed in the development of The Traffic Library:

1. Is there a clear statement of all the main practical divisions of transportation giving a complete organized related knowledge of all matters pertaining to traffic? (See synopsis of volumes.)

2. Are these main divisions arranged in pedagogical sequence so that the subject naturally unfolds in accordance with the psychic laws of: (A) Assimilation? (B) Apperception? (C) Application? (See descriptions in front of each volume.)

3. (A) Is there a clear statement of all the subordinate elements of all of the main divisions, presenting a thorough knowledge of the subject? (B) Is the information which is presented up to date, accurate and pertinent to the subject? (See synopsis under each chapter.)

4. Are the subordinate elements introduced to the mind in accordance with the psychological principles: (A) Proceed from the known to the unknown? (B) From the simple to the complex? (C) From the similar to the dissimilar? (D) From the particular to the general. (E) From the concrete to the abstract? (F) From the sensations to perception and apperception?

5. Is there a sufficient reproduction of apperceptive data to enable the student to interpret all new individual notions in terms of past experience and knowledge?

6. Is there a distinct statement of the practical aim of each topic assignment, based upon the psychology of interest inducing the student to work for a definite purpose and finish his training?

7. Is there a proper use of specimens, exhibits, charts, maps, graphs, etc., for the full development of all individual notions, making the information real?

8. (A) Is there a clear statement of all individual notions, at the same time avoiding the possibility of confusion as to meaning? (B) Are all the individual notions properly related to past experience?

9. (A) Are all statements of individual notions presented in simple conversational English and easily understood? (B) Are the mental pictures made clear and complete? (C) Is there any matter included which does not amplify the subject, thus confusing the student?

10. Is there a pedagogical transition from individual notions, following the psychological laws of passing from sensations to images and from images to concepts or general notions?

11. (A) Is there a psychological development of general notions into laws and fundamental principles? (B) Are the fundamental principles clearly stated? (C) Do definitions follow the laws of genius and differentia?

12. Is there a proper association of general notions and fundamental principles with apperceptive data, making new knowledge permanent, easily reproduced by memory, and reconstructed by the imagination?

13. Is there a thorough application of all general notions and fundamental principles to practical work, resulting in practical experience knowledge?

14. Is there a complete psychic association of general notions and fundamental principles, resulting in new, organized knowledge, enabling one to take the initiative in constructive work?

15. Is there a proper review of all practical principles presented in the form of Practical Problems, in accordance with the psychic laws of association, repetition and intensity, resulting in permanent organized knowledge?

The information presented in the thirty-three volumes is therefore given in a pedagogical order, so that any one by following the Docket synopsis can easily turn to any subject in which he is interested and ascertain what information is assumed sufficient to thoroughly qualify himself on that subject, in the quickest time, with the least effort. The Traffic Library is so arranged that it may be used as a practical reading course.

RECENT MEETINGS OF TRAFFIC EFFICIENCY CLUBS.

The American Commerce Association is making notable progress in the establishment of traffic efficiency clubs at the various important traffic centers, and the following constitutes a brief review of meetings recently held:

CHICAGO.—The first annual banquet of the Traffic Efficiency Club of Chicago, was held at the Great Northern Hotel on Thursday evening, January 21st, with ninety guests present. A spirit of good fellowship pervaded the entire evening's activities, and a number of interesting and appropriate addresses were made. The principal speaker of the evening, Harry L. Derby, of New York, second vice-president of the American Commerce Association, was introduced by Toastmaster J. P. Curran, and his remarks, which bore largely upon the value and the necessity for such an organization, were received with appreciative attention. Mr. Derby was followed by Mr. T. M. Webster, of the Michigan Central Railway, who in turn was followed by Mr. Hancock, of Mexico City, who caused amusement by referring to the queer conceptions of the Mexican authorities in administering justice and law. Mr. Hale, of the Transcontinental Bureau, also delivered a brief and interesting address.

Each of the officers of the Club were called upon and President E. S. Ketchum made a happy reference to the new organization by stating that "A. C. A." stands for Ability, Confidence and Activity. A brief report was submitted by the Question Box Committee.

Before the close of the banquet, each guest was presented with a copy of a pamphlet entitled "Opportunities," by H. G. Wilson,, president of the National Industrial Traffic League.

OMAHA.—The Omaha Club held their regular meeting on February 9th, with a good attendance. Mr. John P. Curran, of the Central Freight Association, gave the members an interesting talk on traffic efficiency. The membership is increasing and will soon be over one hundred. The men are deriving much benefit from the discussions of practical traffic problems. The officers of the Omaha Club are: Mr. James C. Cross, president;

C. F. Westcott, vice-president; O. P. Marsh, secretary, and G. W Anderson, treasurer

St. Louis.—The St. Louis Traffic Efficiency Club has been making rapid strides in gaining new members for the organization, and by providing good speakers at their semi-monthly meetings, on vital traffic questions of the day.

At the meeting of the Club, held at the American Hotel, Thursday evening, February 4th, Mr. P. M. Hanson, traffic manager of the National Enameling and Stamping Company, gave a splendid talk on "Traffic Efficiency." He gave an outline of the needs of railroads and big industrial concerns to-day for men who "knew" every angle of the shipping game and pointed out that men equipped with this knowledge could go to the top of the ladder and achieve success and independence. After his talk the members had an animated discussion covering various local traffic questions resulting in an unusually profitable evening.

Mr. R. A. Blanchard, president of the Club, gave a short talk on the advantages to be derived from membership in the American Commerce Association and earnestly recommended that every man ambitious to advance in traffic work should join the Association. Nine applications for membership were received and accepted, making the total enrollment to date, thirty-nine, which is considered a satisfactory record, in view of the short life of the Club. The Secretary, Mr. Eugene Elkins, will be glad to give any information regarding the Club, or confer with traveling members from other cities. His address is 524 Granite Building.

March Meeting of Traffic Efficiency Clubs.

The following program has been arranged for the March meetings of the Traffic Efficiency Clubs:

March 4.

24. Reciprocal Switching and Demurrage—Speaker to be selected.
25. Illustrated Rate and Routing Problems.
26. Publictiy and Legislative Committee Report.
27. Application of Tariffs between and from Points in the Canadian Freight Association Territory to other Defined Territories (See Docket, page 40).

March 18.

28. The Trap Car Service, Speaker to be selected.
29. Application of Tariffs, from Points in Western Trunk Line Territory to Defined Territories (See Docket, page 45).
30. Moot Classification Case.
31. Question Box Committee Report.

Railway Exhibits at the Panama-Pacific International Exposition

The Palace of Transportation at the Panama-Pacific International Exposition bids fair to contain some of the most interesting exhibits to be found at the Fair. Transportation in all its developments will be shown and particular attention is to be paid to the advance which has been made within recent years in electric traction and aerial navigation.

One of the most striking exhibits will undoubtedly be that of the Westinghouse Electric and

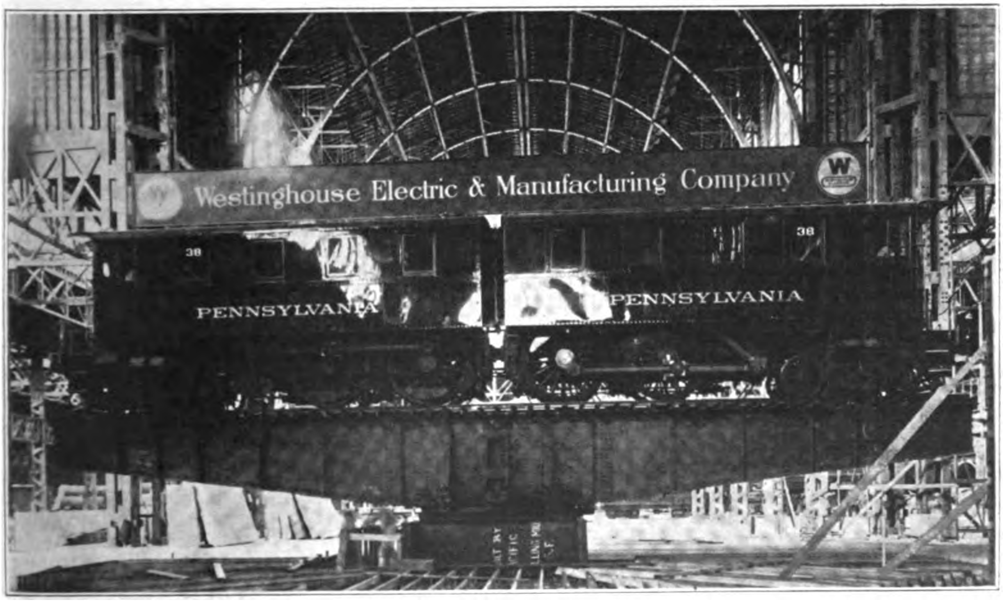
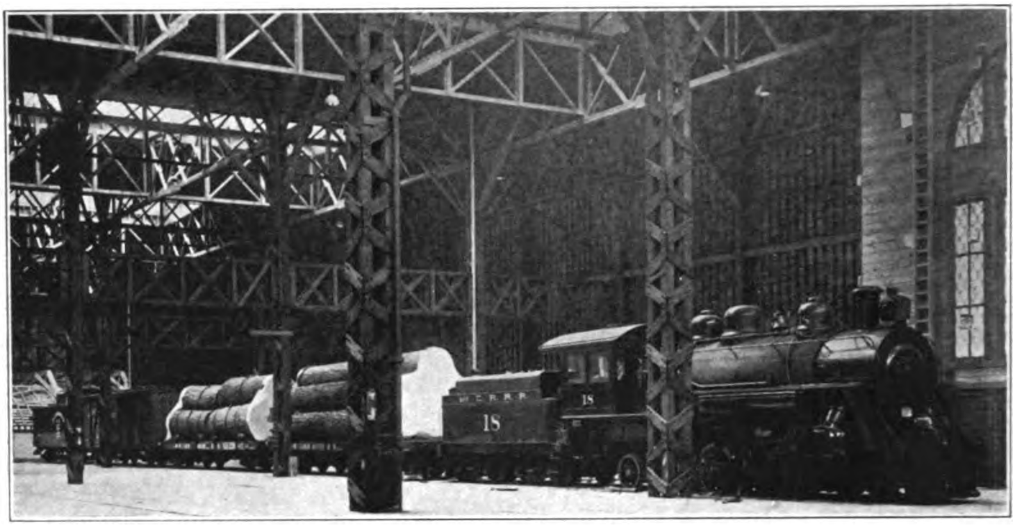


Exhibit of the Westinghouse Electric and Manufacturing Company in the Palace of Transportation at the Panama-Pacific International Exposition



An Exhibit of the Standard Type of Equipment Used by the Larger Lumber Companies on the Pacific Coast.

Manufacturing Company, which includes one of the Pennsylvania Railroad locomotives mounted on a turntable, as indicated in the accompanying illustration.

The location of the turntable is under the center of the dome of the immense Transportation Building at the junction of the two main aisles, thus bringing it in full view of crowds which are expected to pass through this building which will contain a large number of exhibits of great interest to the public at large.

The turntable is 65 feet long, and weighs 440,000 pounds, including the locomotive. The height of the track is 12 feet above the floor, and steel ties are used, a new type of construction for this class of work.

By means of 10 horsepower, 3-phase. 220-volt motor the turntable is caused to revolve at a speed of once in three minutes, thus giving the crowds in each end of the building different views of the locomotive. The rotation, which can be reversed in direction, is under the control of the operator located in a booth nearby.

A decidedly unique method of collecting the current for lighting the locomotive is employed. This was designed by the Westinghouse engineers and involves bringing the leads up through center bearing, to collector rings, thus obviating the use of third rail shoes or trolleys.

The locomotive is arranged and lighted so as to permit the people to pass through it and inspect the equipment. It is clamped to the turntable by means of steel bands so as to prevent any possibility of its becoming dislodged in the event of an earthquake.

This locomotive is said to be the largest in the world in passenger service. It consists of two units and weighs 156 tons, and is the first side-rod gearless locomotive ever placed in service.

It is equipped with two motors having a total capacity of 4,000 horsepower, and Westinghouse unit switch control equipment of the HBF type, which has made the phenomenal record of 99,549 miles per train minute delay power control failure. Twelve million passengers annually are transported over the electrified terminal of the Pennsylvania Railroad from Harrison, N. J., to Pennsylvania Station, New York City by these locomotives which are capable of attaining a speed of 60 miles per hour with full train.

In addition to the locomotive, the newly developed types PK and HL control for railway motors will be shown in actual operation.

These control equipments will operate motor racks equipped with 40 horsepower motors. The PK control operating head can be applied to any standard type K controller.

A complete line of commutating-pole railway motors including box, are split frame types for various voltages from 600 to 1,500 will also be shown, and in addition a preliminary sample of the new pressed steel railway motor.

Another interesting exhibit in this builidng will consist of a train typifying the standard type of equipment used by the larger lumber companies of the Pacific Coast. The display is made by the McCloud River Railroad Company which operates a large industrial plant in Siskiyou county, California, together with a modern railroad system.

The rolling stock used by the company in their logging operations and in the handling of their finished products, is modern throughout. The locomotive in the exhibit is a Baldwin, built esoecially for heavy logging service. The logs, which are loaded on the flat cars, are fatsened with chains and grab hooks just as they are loaded in the woods for shipment to the mills to be sawed up into lumber. The logs, which are of the sugar pine variety, comes from the wooded slopes of Mt. Shasta and are made into boxes, mouldings and various household building materials. A box car and a caboose of standard design complete the train.

The exhibit is of particular interest as illustrating how one of the leading industries on the Pacific Coast is carried on. Taken in conjunction with the various transportation exhibits in the building demonstrating the handling of passenger and freight traffic by modern day methods, the lumbering industry, which has played an important part in the growth of the West, will be ably represented.

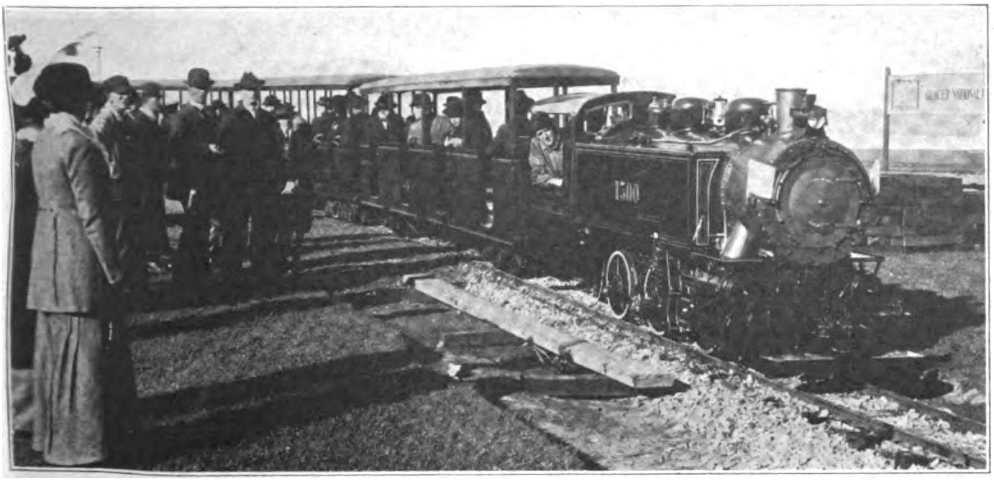
The Intra-Mural Railway at the Panama-Pacific International Exposition

OF the several means to be taken to eliminate the bugaboo of leg-weariness from the grounds of the Panama-Pacific International Exposition during 1915, the most elaborate and effective will be the little intra-mural steam railway, with its five miles of steel track, work on which was begun on October 1st. With its eight or ten modern Pacific type of engines 17 feet in length each weighing 12 tons equipped with air brakes, standard automobile couplers, electric headlight and six drive wheels, each little giant hauling a train of ten minature passenger coaches, and running on a regular schedule on a double-track system, the Exposition Marina railway puts the finishing touch to the metropolitan appearance and business facilities of the Alladin City.

Despite the extremely narrow gauge of the track, only 19 inches, each of the coaches, with a width of 42 inches and a length of 20 feet will contain ten transverse seats, will seat twenty passengers. With ten coaches to each train and eight trains in operation, sixteen hundred people can be put in motion at once. Conforming to city speed regulations, the trains will make only about ten miles an hour between stations, of which there will be seven, including three terminals, elaborately fitted up with train shed, elevated platforms and turn-tables.

The route, commencing at the terminal at the southeast corner of the Palace of Machinery, near the Panama Canal concessions, will be northerly across the plaza of the exposition ferry slips to the water front thence along the Marina around three sides of the Yacht Harbor, diagonally across the gardens of the California building thence westward between the bayshore and the many state buildings, branching between the live stock yards and the race track. One branch swings around the eastern end of the race course to a terminal at the south entrance to the track grandstand. The other continues along the Marina close to the water front, to a point just west of the Fort Point Life Saving Station, where will be located the main railway yards, engine house and turn-tables.

Of the stations, one will be located on the Marina at the water's edge, just north of the Palace of Mines, a second will be in front of the California building, a third at the intersection of the Avenue of Nations with the Marina, in front of the Colorado and Michigan state buildings, a fourth which will be very attractive architecturally, between the stadium of the stock exhibits and the grand stand of the race track, and others at the terminals. The main loading station, at the beginning of the line at the Machinery Palace, will be 300 feet in length, with five tracks between which will be elevated loading platforms, terminating in a turn-table for reversing the baby engines. The entire line, about two and a half miles in length, will be double tracked with rails weighing 13 pounds to the foot.



THE INTRA-MURAL RAILWAY EMPLOYED BY VISITORS AT THE PANAMA-PACIFIC INTERNATIONAL EXPOSITION TO REACH VARIOUS PARTS OF THE GROUNDS. WHILE OF MINIATURE SIZE, IT IS THOROUGHLY PRACTICAL IN OPERATION.

The Necessity for a Definite System of Compiling Railway Statistics

By SLASON THOMPSON, DIRECTOR OF THE BREAU OF RAILWAY NEWS AND STATISTICS.

TO-DAY the success of our sound system of Federal railway regulation is muddled and imperiled by the obsession for innovation and statistical astigmatism of the accounting division of the Interstate Commerce Commission. Prior to 1907, under the direction of Prof. Henry C. Adams, its statistics had become the most valuable repository of relevant data in regard to railways in the world. Since that year every annual report has witnessed changes in form and innovations as to matter that have ended in making them non-comparable with themselves or anything else on earth.

In 1908, for the first time, the official statistics partially excluded the returns for switching and terminal companies independently organized, but continued to include the service at switches and terminals performed by all other roads. The tables for that year bristled with footnotes warning the reader that they did not include the important data for switching and terminal companies which from their nature are as necessary to the transportation industry as gills to the fish. This one innovation put all previous statistics of American railways out of line for compartive purposes

By 1909 the process of eliminating returns from switching and terminal companies was complete and the report shows the elimination of numerous ten-year comparisons which had been an illuminating feature of previous reports.

In 1910, under a statute relieving the carriers from reporting accidents in their annual reports, the Statistician dropped all the comparative summaries and analyses of accidents which for twenty years had been a most important feature of the annual statistics. The fact that the railways were compelled by law to make monthly returns of accidents, which were compiled quarterly and annually, did not justify this omission, for statistics of accidents are pointless except as they are analyzed relatively to the miles of trackage whereon they may occur; the passengers and freight carried; the billions of passenger and ton miles and the millions of persons employed. Since 1909 the statistics of accidents have been excluded from the official statistics where they could be studied intelligently in connection with the figures of the enormous traffic to whose handling they relate.

Between 1909 and 1910 the office of Statistician to the Commission passed from Professor Adams, who had organized its work originally, into the hands of William J. Meyers, of the University of Michigan.

Whether to signalize the change or to mark a new departure in policy, the statistics for 1911 came forth unrecognizable in form and perplexingly masked as to matter.

Where previously the railways of the United States had been very properly treated as a whole, they were here arbitrarily divided into three classes, viz., Class I, those whose operating revenues for the year equal or exceed $1,000,000; Class II, those whose operating revenues equal $100,000, but are less than $1,000,000; and Class III, those whose operating revenues are less than $100,000 annually. This innovation followed a policy first adopted for the monthly income reports, for which an obvious excuse could be pleaded. The 180 companies with annual operating revenues of $1,000,000 or over, handled 96.02 per cent of the traffic of the country and could afford the expense of monthly reports, which would serve as a rough barometer of the transportation industry, for political, social, financial and speculative purposes. To be of real value for these ends it was necessary to have such returns made and compiled promptly, something out of the question if they included reports from nearly a thousand operating roads. The result of this move was to reduce the mileage covered from 245,633 miles for October, 1911, to 218,603 in November following—thus eliminating a mileage approximately equal to that of all the French railways.

The reason for this classification in the monthly returns does not apply to the compilation of the essential statistics in the annual reports, for the compilation of which more than ample time has always been taken.

At the same time that change was made in classification along purely arbitrary financial lines, the statistician reduced the territorial divisions from the ten groups as apportioned in 1890 to three, viz., Eastern, Southern and Western. This action at one stroke destroyed the value of the assignment of railway statistics, as representative of the territory through which the lines run, the density of population, topography of the country and character of the industries served. A classification that brings Maine and Ohio, West Virginia and Florida, Illinois and Arizona, into the same groups respectively, has no statistical aim behind it beyond the saving in compilation in Washington.

This arbitrary innovation left all comparisons of railway statistics in the air so far as territorial divisions were concerned and introduced an assignment along lines coincident with arbitrary traffic classifications which the Commission has persistently endeavored to obliterate.

In 1912 the statistical innovator rested from his labors, except that he introduced a new statement purporting to show the investment in road and equipment to June 30th of that year. In the course of time this may become of increasing value.

But in the text of the annual statistics for the year to June 30, 1913, just issued, the statistical innovator renewed his "pernicious activity" until the whole report abounds with statements having no comparable value or relation. One of the chief of these departures is the omission of Class III roads from a majority of the summaries. Instead of bringing the report down to a simple and perspicuous presentation of the essential details of railway mileage, facilities, equipment, service and financial results, the report has become a labyrinth of intricate figures from which only painstaking experts can make intelligent comparisons.

Take the matter of mileage, for instance, which should present only one difficulty to the eye of governmental regulators and that is the difference between operated mileage and physical mileage. This difference is always represented by the miles operated under "trackage rights." The physical mileage is either owned or leased by the operating company and the item of rent paid for lease of road should obviate any reference to "non-operating roads" whose introduction into recent statistics merely crosses the scent in the pursuit of the truth about railway operations and finances.

The first mileage statement for 1913, in addition to the division by districts, introduces the following divisions:

	Miles.
Owned by Class I operating roads ..	168,304.89
Owned by Class II operating roads ..	18,491.21
Owned by Class III operating roads ..	8,252.20
Owned by non-operating roads	45,882.04
Owned by roads not filing reports	8,872.39
All classes official	247.447.53
All classes unofficial	2,355.20
Total	249.802.73

By eliminating the mileage of which the Statistician has no official knowledge this places the physical railway mileage of the United States in 1913 at 238,575.14 miles.

The next mileage statement gives the miles of track for the year 1913 covered by operating reports:

Classes I andl II—	Miles.
Single track	244,418.49
Second track	26,270.55
Third track	2,588.68
Fourth track	1,964.06
Yard track and sidings	94,338.02
Total mileage all tracks operated	369,579.80

Three lines below in the same table report gives the following figures for all three classes for the year previous, 1912:

	Miles.
Single track	249,852.06
Second track	24,951.65
Third track	2,511.76
Fourth track	1,903.32
Yard track and sidings	92,019.13
Total mileage all tracks operated	371,237.92

If to this last figure we add the miles of line and auxiliary track constructed in 1913 we get a total of 378,038 miles as the approximate railway trackage in the United States for 1913. But why couldn't the official statistics give the exact figures as in 1912?

In the third mileage statement where the railways operated are given by States and Territories, the total for Classes I and II is said to be 242,472.45 miles, exclusive of mileage operated in Canada. Adding this would give a total of $244,418.49. If to this be added the 8,252.20 miles owned and operated by Class III roads, 252,670,69 miles is arrived at as the approximate total operated mileage of the railways of the United States for the year 1913. Subtracting from this 11,401.70 miles operating under trackage rights in 1912—complete figures for 1913 being abandoned—the physical mileage of the operating railways of the United States for the year covered by official reports would appear to be 241,268.99 miles, exclusive of the mileage of switching and terminal companies.

This would be conclusive except for the fact that previous reports included a table which in 1912 gave a total operated mileage of 258,032.86, including 1,870.85 in Canada. If to this be added the 3,025.98 miles increase for 1913, we arrive at 261,058.85 miles, less 11,401 operated under trackage rights, or 247,786.30 miles as the actual mileage of the railways of the United States, whether covered by operating reports or not.

Now there is no need of labyrinthian statistics to arrive at such a result, inconclusive at best. One table giving single track mileage operated, of which the footings for 1913 follow would have been sufficient:

Line owned by operating company	185,454.88
Line operated under contract or lease	47,800.64
Line operated under trackage rights	11,162.97
Total mileage operated (single track)	244,418.49

Note.—Does not include Class III mileage.

So far as regulating the operation of the railways of the United States is concerned the public concern in the second item begins and ends with the rental paid for the possession of the property. This should be regarded as a fixed charge.

This brings us to a consideration of what is the most far-reaching and cherished failure of official statistics to present the truth regarding railway affairs. In a special report in 1908 the Commission for the first time made what it characterized as "a correct statement of the portion of securities outstanding in the hands of the public," which were "an actual claim upon the revenues of the railways of the country." Since then the net capitalization has been stated with an approach to consistent accuracy. But at no time has there been an attempt to unravel the tangled skein of its own statistics in regard to the duplication of interest and dividends. Instead of following the obvious method of dealing only with the roads whose capital had to be supported by freight and passenger rates it permitted its statistics to become hopelessly mired in the old ruts of intercorporate relations and payments.

Eleven pages (9 x 11½ inches) of the report for 1913 are given up to several complicated tables covering the "capitalization of railway property." So far as railway regulation is concerned the residuum from all this imposing compilation of figures may be condensed into the following brief statements:

	Stock	Funded Debt	Total per mile
Net capital	$5,810,231,391	$9,519,900,055	$65,861
Amount of dividends declared	....	369,077,546	....
Average rate on dividend yielding stock	5,780,982,416	6.37%	....
Average rate on all stock	....	4.22%	....

The statement in regard to net capitalization may be accepted as approximately correct, although it is exclusive of Class III roads. But that in regard to dividends, which includes all three classes "and their non-operating subsidiaries" is demonstrably incorrect and misleading. Treating, as it does, of the vital return to the owners of railway property its misleading nature may be exposed by reference to another statement in the report which shows the following dividend items of which it was composed:

DIVIDENDS DECLARED 1913, CLASSES I AND II.

Operating roads—	
From current income	$241,750,512
From surplus	85,706,629
Non-operating roads—	
From current income	38,899,119
From surplus	2,250,069
	$368,606,329

From this it is apparent that only $280,649,629 of the dividends declared in 1913 were even apparently derived from current income, the balance being from surplus and $471,220 on account of Class III roads.

But even this $280,649,629 is largely fictitious, as the following statement demonstrates:

Average miles represented		242,667.12
Revenues from rail operations		$3,127,164,132
Operating expenses	$2,169,968,924	
Railway tax accruals	127,331,960	2,297,300,884
Railway operating income		$829,863,248

Deductions:		
For lease of road......	**$137,479,267**	
Hire of equipment, net debit, balance	**17,438,852**	
Interest on funded debt.	**380,145,142**	
Interest on unfunded debt	**26,278,796**	..
Appropriations for additions and betterments	**48,022,688**	
Appropriations to sinking and other reserves...	**13,051,525**	
Miscellaneous deductions	**1,939,551**	**624,355,821**
Balance for dividends, surplus and adjustments		**$205,507,427**

Of the $137,479,267 paid by the operating roads in rent, $28,899,117 was distributed in dividends and $59,469,445 was paid for interest, by the non-operating roads. It is therefore evident that no sum greater than $245,000,000 could have been paid in dividends derived from rates and fares in the year ending June 30, 1913. This is less than 4½ per cent on the net railway stock in the hands of the public and only 2.81 per cent on all railway stock!

One table gives the "net dividend appropriation," as $260,864,853!

With over $100,000,000 less net income in 1914 and at least $10,000,000 more interest to pay, it will tax the ingenuity of the official accountants to keep up their high level of fictitious dividends.

Sound Steel for Rail and Structural Purposes

NOTE.—The following extract, taken from an article appearing in the February issue of the *Journal of the Franklin Institute* and written by Sir Robert A. Hadfield, F. R. S., is of particular interest at the present time owing to the large number of rail fractures which have occurred in recent years, and which, in some instances, have resulted in costly and deplorable wrecks. While the Franklin Institute does not hold itself responsible for the statements and opinions advanced by contributors, the following paragraphs will prove of interest to all those who have under consideration the development of a more perfect steel rail, which shall be free from those internal defects produced by the piping and segregation found in ingots made in the ordinary way.

WITH reference to the recent interesting paper by Dr. Allerton S. Cushman on "Research in Metallurgy of Iron," which appeared in the July *Journal*, and its reference to sound steel, the writer desires to put the following statements before The Franklin Institute, as a contribution on this important question of producing steel which can be safely used for railroad track work and structural requirements generally.

The various papers by the writer on this subject are shown in Table III at the end of the paper. These are given as reference for those who may wish to further investigate this matter.

As rightly pointed out in Dr. Cushman's valuable paper, the question of sound steel is of the utmost importance, covering, as this does, the production of sound rails. The rail problem in America is a serious one and concerns the safety of the traveling public, yet rails continue to be produced from ingots made in practically the same manner as used for years back; in fact, ingot-making practice is pretty much the same to-day as it was ten years ago. This is the more to be regretted when simple, cheap, and efficacious methods are in existence by which the trouble and dangers now met with can be overcome. In other words, there is not the slightest necessity that unsound material should be produced for rail or other purposes; in fact, strange as it may seem, there is also no reason why a single unsound ingot need be produced. This is shown by the following research work which the writer has carried out during the last few years.

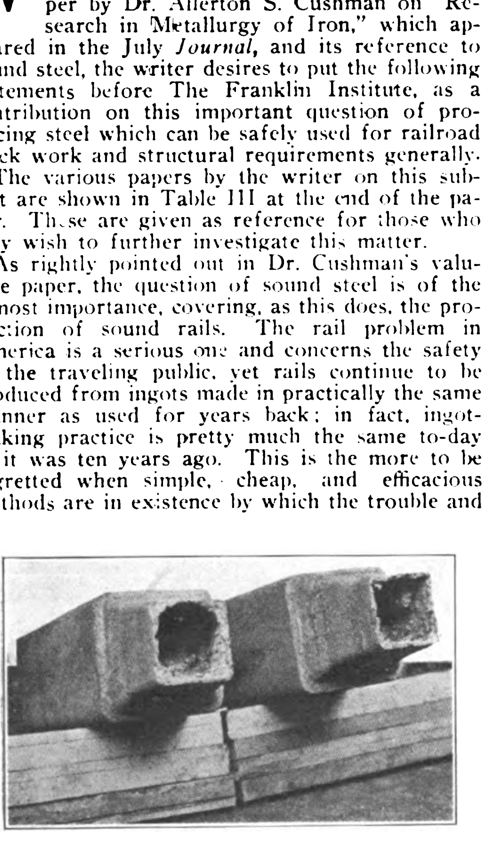


PLATE 1. EIGHTEEN-INCH INGOTS WEIGHING ABOUT 2¾ TONS, MANUFACTURED BY THE HADFIELD PATENTED METHOD FOR PRODUCING SOUND INGOTS.

Photograph No. 2074 (Plate I) represents two 18-inch ingots made by the writer's system, weighing about 2¾ tons each. These ingots were cast with the small end up, as in ordinary practice. This photograph is interesting, as it gives an excellent view of the cavity produced by the sound steel in these ingots as it settles down into the body of the ingot proper; that is, below the feeding head. As previously mentioned, in these ingots it is not necessary, in order to determine whether they are sound or not, that machining or other observation by mechanical methods should be carried out, and at least 88 per cent to 90 per cent of sound usable and salable material is obtained. This, too, can be accomplished just as readily and easily with 10,000 or 100,000 as with one ingot.

If the reader will examine photograph No. 2065 (Plate II), which shows an ingot made in the present and ordinary manner, he will see that not even the most experienced expert could say whether the interior of the ingot was sound or unsound, whereas the ingot in photograph No. 2074 (Plate I) shows the steel to have settled or sunk down. When steel so sinks it is a definite proof that the material is sound and free from blowholes. In other words, the presence of this cavity is conclusive evidence of the soundness of the steel. If the steel were not sound there would be no cavity, so that this particular quality of soundness of the steel is made self-apparent.

The following results further illustrate this important advance in the production of sound steel: To show how considerable is the cavity which forms in piping steel, nine 15-inch ingots were taken (weighing about 3,600 pounds each) as they

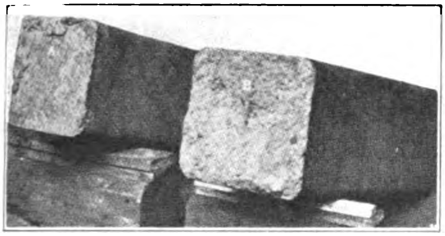


Plate 2. Eighteen-inch Ingots Weighing about 2¼ tons. Ingot A, is Unsound, while Ingot B is Piped.

came through, each of which had the sand head and the writer's improved method of feeding carried out on them. After the ingots had cooled down, the hollows or cavities in the sand heads were filled with water, then the water poured out and carefully measured. Table I shows the results obtained.

Table I.

Ingot Number	Cubic Inches.	Pounds of Steel.	Percentage of weight of Ingot.
1	457	128	3.57
2	549	154	4.30
3	457	138	3.57
4	457	128	3.57
5	472	132	3.68
6	488	137	3.82
7	518	145	4.05
8	579	162	4.52
9	488	137	3.82
Average	496	139	3.88
Maximum	579	162	4.52
Minimum	457	128	3.57

Weight of Ingot, 3,600 pounds.

The average weight for the nine 15-inch ingots showed that 139 pounds, with a minimum of 128 pounds and a maximum of 162 pounds, passed from the head portion into the ingot itself. This percentage is represented by an average figure of 3.88 per cent. In other words, about 4 per cent, or 140 pounds, of the total weight of the ingot or ingots cast passed from the upper or feeding head into the body of the ingot.

There could not be a more striking illustration of the quality of the ingots produced and of the value of this system. Even in the case of the minimum percentage weight of steel which passed from the head of the ingot itself, there is a weight of no less than 128 pounds of steel short in the head, and therefore present in the ingot itself, all adding to the soundness and proper feeding of the piping which would otherwise occur.

To show still more clearly the important information obtained from these experiments, let it be assumed that the cubic capacity of each of the 15-inch ingots in question was approximately 12,500 cubic inches. Therefore, but for this feeding, there would be a general want of solidity, chiefly at the upper portion of the ingot, to the extent of, say, 500 cubic inches—say, 4 per cent—of the whole capacity. It is surely readily apparent why an ingot which is not fed must perforce be deficient in homogeneity.

It is not claimed that ingots made in the ordinary manner are deficient to the full extent of, say, 4 per cent, even when the steel is sound, which unfortunately, is usually not the case. There is a certain amount of feeding effect from the steel in the upper portion of the ingot, but this is not done efficiently, as the steel quickly freezes on the outside of the mould and on the surface of the liquid steel exposed to the air. Moreover, there is always an uncertainty as to how good or how bad is the resulting material. If the steel is piping very much, the trouble will be worse than when it is piping less. In any case, as the steel solidifies in an ingot of this size, the natural law of contraction demands that about 500 cubic inches have to be dealt with; that is, on an ingot of the weight and size mentioned. The writer cannot see how this can be efficiently and cheaply met except by some such method as described in this paper.

While the results necessarily vary slightly, because the sizes of the head portion nearest the top of the mould formed in sand are not always uniform in length, as the steel shrinks down slightly more on the outside in some cases than others, on the whole the maximum and minimum figures of 4½ and 3½ per cent of the total weight of the ingot having passed from the head into the ingot itself show very uniform working; if the heads were absolutely the same depth in each case, there would be practically no difference.

Without wishing to exaggerate, it is easy to picture to oneself what would be the character of each of these ingots, if not made and treated under the method now described. The piping would have probably run down the ingot itself, requiring a discard of probably 25 to 33 per cent.

Although water cannot be poured into the cavity of a redhot ingot, yet the cavity can be determined in each ingot by a cursory examination while at a red or yellow heat, involving only a few seconds of time. It will, therefore, be seen that every ingot can be readily checked by such cursory examination.

While in ingots made in the ordinary way as above mentioned a certain amount of the fluid steel passes from the upper portion to the lower, still in so doing it is robbing the quality of the upper portion of the ingot itself, which has no fluid metal above it to feed or take the place and supply the deficiency thus created. It will readily be understood, therefore, why the upper portion of ingots is so seriously affected as regards their soundness, also why segregation occurs. This is shown in a remarkably clear maner by Fig. B in Plate IV, showing an ingot made in the ordinary manner in America and afterwards cut up by the Standards Bureau. The occurrence of these defects varies according to the type of steel, whether rising, semi-rising, or settling nature.

Again referring to this question of the cavities, if, as proved by these experiments, in the ingots made under the writer's system the metal in the sand head portion in descending has without doubt felled or prevented the formation of what would otherwise have been unsoundness, piping, loose structure, or segregated material. In unfed ingots made in the ordinary way there must be steel of loose structure; if not, then in many cases absolute unsoundness and segregation.

Moreover—and this is a most important point—the steel in the "fed" ingots, being maintained fluid in the head portion, continues to exert its ferrostatic pressure, whereas with ingots made in the ordinary way the ferrostatic pressure on the centre portion of the ingot is so slight that it produces very little beneficial effect. Further, without the feeding head above the ingot proper, the outside of the ingot in the ordinary ingot mould becomes rapidly chilled and frozen, so that it cannot contribute its proper share to the feeding of the remaining portion of the ingot. It is not, therefore, to be wondered at that rails rolled from the A and B portions of an ingot made in the ordinary way are liable to unsoundness or piping, or both, and are also often full of impure segregated material.

There would probably be more dangerous ingots but for the fact that the steel maker tries to avoid this type of steel, and aims to make steel which when poured into the ingot will not pipe. Nevertheless, he is still fighting against a natural law. If piping steel is checked or avoided, he runs the risk of producing unsound steel, especially in the upper portion of the ingot, more or less permeated with blowholes. Thus, owing to lack of feeding from the upper portion, the centre, or that portion on the axis line of the ingot, must be of inferior nature, as the piping characteristics persist for quite a long way down the ingot. This, as before mentioned, is for the reason that, owing to want of ferrostatic pressure, the ingot lacks feeding from above, which, in the system of casting ingots now described, is maintained to a very late stage; that is, until or close upon actual solidification takes place. There is always fluid steel in the upper portion of the ingot to feed the piping and shrinkage, both of which must occur, as they follow a natural law. This, too, is the reason why there is so little segregation in ingots made under the writer's system, and also explains why the ferrostatic pressure is kept up to a very late stage. In fact, check or hinder ferrostatic pressure, and segregation, with its bad effects, at once commences. In the case of "fed" ingots, the smaller amount of segregation which occurs takes place outside the ingot proper; that is, in the head.

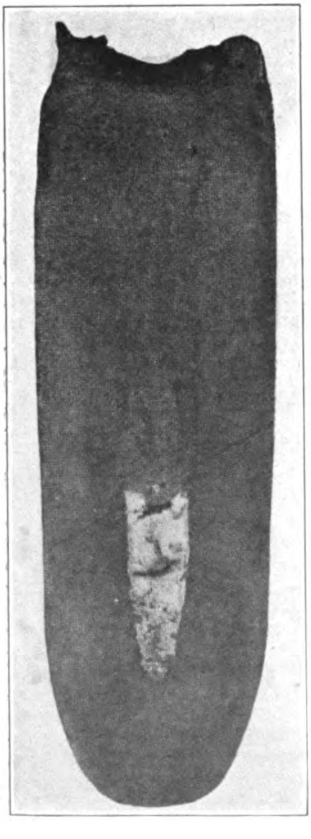


PLATE 3.

With steel of piping nature poured into the ingot moulds and not fed, it need cause no astonishment to find that rails, even from C and D portions of the ingots, may be of material with loose structure consequently weak, if not actually unsound, thus giving inferior or bad results in service. With piping steel not properly fed, there is extreme danger of this pipe extending a long way down the ingot; in fact, in some cases it has been found to go as much as two-thirds the length of the ingot. Ingots have also been found in which the piping has apparently stopped, only to be resumed below the sounder steel.

The experiment carried out by the writer some years ago, by the pouring of copper into the upper portion of an ingot 15 or 20 minutes after casting, showed how serious is this want of ferrostatic pressure in the material situated on or near the centre or axis line of the ingot in ingots which have not been properly fed. The copper finds its way down to the bottom of the ingot, although added fifteen minutes after casting. This is illustrated by Plate III. In any case, if there is no definite pipe at the bottom portion of such ingot, there is still material of loose or open structure, which means weak steel. Although this may not be apparent by fracture to the naked eye, nevertheless it exists, and can generally be detected by an examination of the microstructure. In other words, notwithstanding that the product to be used may come from the lower half of the ingot, yet in unfed ingots it will be weak and not able to stand severe stresses. This is probably the real explanation of the serious breakages which sometimes occur in even C and D rails. Imperfect material is present; only time and sufficient working stresses are wanted to develop its existence and weakness.

It is true that some portions of the cavities in ingots have been measured, but probably not in the manner described by the writer.

Although in the examination of the top of an ingot cast in the ordinary manner and from steel which "settles" there is external evidence of some piping, this is irregular and varies considerably. Therefore, in the "best" ordinary ingot proper evidence is slight as to how much or how little the steel has piped. Dr. Dudley has pointed out, in his interesting paper to the Institute on "Piping and Segregation of Ingots of Steel and Ductility-tests for Open-hearth Steel Rails," read in February, 1913, that in such ingots the piping is divided into two kinds: the upper, or what may be termed the visible pipe, and the lower, or hidden pipe, the extent and character of which can be determined only by cutting open the ingot. In the ingots cast under the writer's system, all the cavity or pipe is open and can readily be inspected from the top; its extent can be determined whether in the hot or cold condition. It is, therefore, not necessary to cut open the ingot. In other words, such cavity produced by the piping is "the outward and visible sign of an inward and spiritual grace"—"spiritual grace" in this case meaning "soundness."

Dr. C. K. Burgess, of the Bureau of Standards, Washington, is at present working with the writer on a joint research relating to this subject, and, though the full details of the work done cannot at the present time be given, it may be stated that ingots made under the writer's system were carefully cut up by the Bureau and compared with similar ingots produced at rail mills and made in the ordinary manner. The comparisons are shown by the enclosed photograph No. 2221 (Plate IV), in which Fig. A represents the ingot made under the writer's system, as described in the various papers, and Fig. B represents an average ingot made by one of the rail makers. It will be seen there is a remarkable difference in favor of ingots made under the writer's system. It is apparent that thoroughly satisfactory rails cannot be produced from ingots of the B type representing ordinary ingots produced by the rail maker. In the writer's ingot, Fig. A, there are no blowholes and no segregation below the head portion. The ordinary ingot, Fig. B, is very unsound, badly piped, and is segregated through nearly half its total length.

While the average ingot used for rail manufacture is known to be imperfect, it is difficult to realize such ingots are so decidedly inferior as shown by Fig. B, but such is the case. This, it must be remembered, represents the results of an independent examination by no less an authority than the Bureau of Standards. The full report of this research will be shortly issued by the authors, namely, Dr. G. K. Burgess and the writer. It may be mentioned that this entirely confirms the great advantages to be obtained in ingots made by the system referred to in this paper. Moreover, the same authority states that rails rolled from ingots made under the writer's system show that the metal is quite sound, clear up to the front end of the first rail rolled (that is, immediately under the feeding head), whereas from the B ingot made in the ordinary manner, of which hundreds of thousands are turned out annually, at least two or three of the rails obtained are unsound and piped. It is doubtful whether there would be remaining even 40 per cent of perfectly sound material, as against about 88 to 90 per cent in ingots made under the writer's system.

A further exceedingly important advantage possessed by the writer's system is that it is possible to know definitely that every ingot made is good or bad before it goes to the rail mill. This is entirely a new feature, for, as ingots for rails are now made, they all look alike. An expert, if challenged to indicate by an outward examination of the ingots what would be the quality of the rails from the ingots as now made—for example, those shown in photograph No. 2065 (Plate II)—would be completely at a loss to express any opinion; it is not possible to see "into" (that is, inside) the ingot. On the other hand, with ingots made under the writer's system the soundness of every one can be determined by superficial examination, either when hot or cold, requiring only a few seconds. In other words, before the ingot goes to the rail mill it can be known whether the steel in the ingot itself is sound or not. If the hollow cavity is present, the material below in the ingot proper will be perfectly sound and free from honeycombs, blowholes, segregation, or piping. This cannot be determined in ordinary ingots; that is, it is impossible to ascertain by a superficial examination whether they are sound or unsound, or to determine the nature of the unsoundness or piping present in them. The only way to make such determination would be to have each ingot sliced up by machining, and thus spoiled for actual work, before it could be decided whether the rail or other article produced from the ingot would be sound.

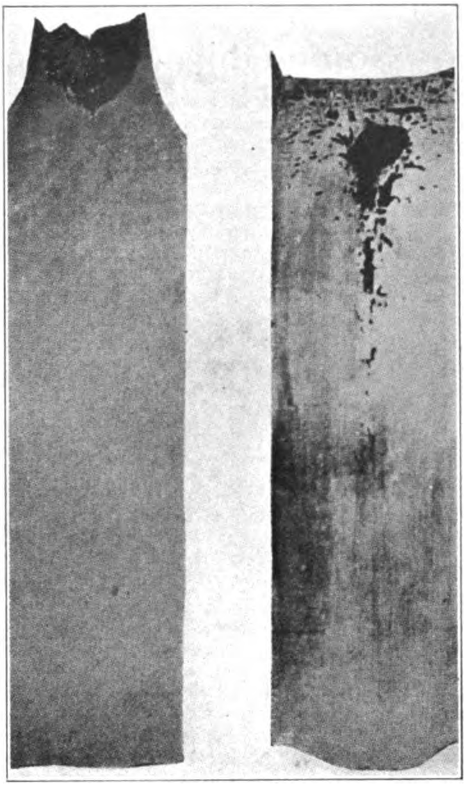


Plate 4. A Comparative Showing of Ingots Made by the Hadfield System (Left) and in the Ordinary Manner (Right). The Hadfield Ingot is Shown Free from Blow Holes, Piping and Segregation, while all Three of these Qualities of Imperfection are Found in the Ordinary Ingot.

It is, therefore, difficult to understand why there is so much apathy in America with regard to this important matter, especially when the definite statement is made that it is possible to check every ingot and to know whether it is right or wrong, and whether safe for being used in the production of rails. As this is the case, it will be seen that the sound rail problem has been practically solved. Certainly no more accidents need occur owing to rails having imperfections due to unsoundness, blowholes, or segregation. It will be understood how important this is, for it means that breakages from these causes would entirely cease.

It is true that even a sound rail will sometimes break, but such cases are few. Moreover, some of the so-called mysterious breakages have really occurred in parts of rails which, while they have appeared to be sound, upon proper examination have been found to be microscopically unsound. In ingots made under the system now referred to, the material is free from this unsoundness. Segregation is entirly avoided; therefore, the whole of the material used is free from those internal defects produced by the piping and segregation found in ingots made in the ordinary way.

Some Objections to Government Ownership

NOTE.—The following address was delivered by the Honorable Jonathan Bourne, Jr., before a meeting of the National Civic Federation at New York City on December 4, 1914.

THE desideratum of all government should be the protection of its citizens and only such restraint of individual action as is absolutely necessary to insure the desired protection of all its citizens.

The limit of the individual's restraint should be clearly expressed by law and not left to the whim or fancy of an executive, a commission, a department or a bureau.

A government of rule and regulation, a bureaucratic government such as ours is rapidly trending toward, cannot long endure.

I am strongly opposed to government ownership of railroads because of the following three objections:

First. The fundamental objection that it would be absolutely destructive of popular and representative government.

Second. The unanswerable objection that government ownership necessitates government regulation; that the failure of government regulation necessitates the failure of government ownership; that the success of government regulation eliminates the necessity or desirability of government ownership.

Third. The economic objection that government ownership would be more dilatory, less efficient and far more costly to the people of the country.

All government, society and business are composed of human units and directed by the forces controlling human action. Hence in approaching governmental problems, we should carefully analyze these forces. Where any individual is called upon for immediate action many forces, such as sentiment, love, passion or hatred may determine the action. I am convinced that every deliberated action of any individual in his primary capacity is controlled or influenced by the individual's opinion as to the effect such action will have upon his own personal selfish interest. If this be true, then the least power delegated to single individuals in government the better for the interests of those governed.

There are no two people in the world exactly alike, and probably there never will be. Hence each individual has a different viewpoint as to what constitutes his own selfish interest. Under community action no individual can secure gratification of his own selfish desire, but must rest content with what the majority of the community believe to be for the best interest of all. Therefore the more you force the people to act collectively, the more you can distribute governmental power, the better the general welfare of the community governed.

In all organized society there are three great forces continually struggling for supremacy: the police force of government, the religious force and the commercial force. The best government would be correlated action between these forces, but with the domination of the police force over the religious and commercial forces.

The people as a whole and not any individual should constitute the police force of government. No individual should constitute a government. Our whole political organization is founded on this idea; and yet the present trend of this country, or at least of the present administration and some previous ones, has been toward centralized government, with practically plenary powers in the hands of the executive, or department or bureau heads.

The evil results of the police force, commonly called the State, being represented or dominated by a single individual are to-day most forcefully and horribly illustrated in the European situation, where one man by virtue of his occupancy of a throne has involved four hundred million people in a continental war, resulting in the slaughter of millions of men, the destruction of billions of dollars' worth of property and cessation of industrial activities with resultant economic waste beyond human comprehension. Had the policies of European nations been left to legislative bodies rather than to individual monarchs the situation which now exists could not have been developed.

Selfishness and ambition so generally control human action that great delegated power must always be a menace. It is certainly axiomatic that centralized power in an individual or commission can only produce results commensurate with the integrity, ability, experience and unselfishness of the individual or individuals constituting the commission.

Returning to my first objection to government ownership of railroads, I assert that it would be absolutely destructive of popular and representative government. The ownership of railroads would be quickly followed by ownership of telegraph and telephone lines, express companies, water transportation companies and electric railways doing an interstate business. I am opposed to government ownership of any of these public service corporations.

I present herewith a table I have prepared giving the number of employes, for the years specified, of the United States Government and of the different public service corporations, showing a total of 3,054,988 employes.

1914, number of Government civil employes	469,000
1912, telephone and telegraph employes	220,656
1913, railway employes	1,815,239
1912, electric and street railway employes	282,461
1906, water transportation	188,348
1907, express employes	79,284
Total	3,054,988

Reflect over these figures. Remember that in the last ten Presidential elections the President has been chosen by a plurality varying from a little over 7,000 to about two and a half millions. Can any person familiar with the politics of this country doubt the correctness of the assertion that, under government ownership of these public service corporations, with the resultant addition of over two and a half million employes to the government pay roll, those employes and their friends would inevitably control the government under our political machinery. The tendency would be more pay and less service in governmental employment, resulting in ceaseless efforts on the part of outside labor to secure government employment because less onerous and more remunerative, with cumulative dissatisfaction and irritation in all private enterprise.

In the past, Presidents have been able to dictate the nomination of their would-be successors, either themselves or others, because of subservience to the executive of the great number of Federal office holders. While it is true that universal adoption of Presidential primaries would minimize the possibility of repetition of this misuse of power in the future, yet, even under a primary system, the existence of over three million employes, subject to removal should not be delegated to any single individual if the Government is to last.

Advocates of government ownership urge that the taking over of the railroads by the government would eliminate them from politics. In my opinion it would have the opposite effect, throwing them into politics.

The assertion that the railroads are now a positive factor in politics is untrue. Undoubtedly there was a time when railroads and other large corporations exerted a very large and very effective influence upon state and national politics, but that time has passed. The direct primary has overthrown the power the corporations had under the old convention system, and the people have the power to-day not only to select between candidates, but to choose the candidates as well.

Government ownership would be followed by organization of government employes for the promotion of their own interests. These employes would immediately become an organized factor in every campaign. Their influence would be exerted, not primarily for the promotion of the best interests of the country, but for the promotion of their own interests. Their influence would be thrown with the party or candidate that promised most for the fulfilment of their desires.

So long as the party in power kept on good terms with the three million government employes, it would have their support, and the support and co-operation of their relatives. While it would be absurd to argue that any such body of men would act as a unit at all elections, it is altogether probable that a sufficient number of them would so act as to make them a formidable political organization.

An administration backed by an active organization spread throughout the length and breadth of the country would thereby have a tremendous and practically overwhelming advantage over the party seeking to supplant it.

The establishment of classified civil service rules and regulations would not remove the menace to truly representative government. Even though appointments be made in part in accordance with competitive tests, the fact that chief officers of the party in power have control over promotions, demotions, transfers and removals, would make the individual governmental employe subservient in politics, except where practically the whole body of employes acted in accordance with prearranged plans for the benefit of the employes themselves.

Our government was founded upon the principle of distribution, rather than centralization of power. The framers of the American Constitution provided for three branches of government, the legislative, executive and judicial. The legislative branch, composed of a large number of individuals, was designed to be the dominant branch, for it was vested with the law-making power. The judicial branch was designed to interpret and the executive branch to execute the laws enacted by Congress.

But in practice we have drifted far from the principles adopted when the government was founded. Ours is a representative form of government, generally conceded to be the best thus far evolved by the brains of men, because it is a government of, for and by the people. Yet, especially in the past two years, our tendency has been, in my opinion, entirely contradictory of the theory upon which our government was constructed, and, unless checked, must result in absolute destruction of representative government.

Some political leaders seem to have gone commission mad. Every social and economic problem, in their view, calls for the creation of a new bureau or department or commission with power to make rules and regulations for the government of the American people. Congress, the legislative body of the Constitution, is becoming but an instrumentality for the creation of bureaus and commissions vested with the real law-making power. The citizen of to-day, who wishes to know what he can or cannot do within the law, consults not merely the statute books, but the latest pamphlets of rules and regulations adopted by some department or bureau head or commission.

While I believe the Interstate Commerce Commission has accomplished and is accomplishing much good; have favored its receiving the power to regulate railroad rates; yet I realize that it is yet to be demonstrated whether the powers it already has should be enlarged or curtailed, and I am appalled at the realization that the legislation of the past two years has so centralized government as to place the interstate business of this country practically in the hands of nineteen men, or possibly of eleven; the Interstate Commerce Commission, consisting of seven members, or a majority of four, practically determining rates affecting the welfare of the whole nation; the Federal Reserve Board consisting of seven members, or a majority of four, practically determining currency expansion or contraction affecting all business of the country; the Trade Commission, consisting of five members, or a majority of three, that will practically dictate the policies of 160,000 of the large corporations of this country, with the inevitable result that attempts will be made to use these boards as political machinery for the advantage or disadvantage of some administration and ultimately of some individuals.

Proceeding now to a consideration of my second objection:

It is strange that the advocates of government ownership, who assert the failure of government regulation, overlook the fact that government regulation is just as essential under government ownership as it is to-day. If the Interstate Commerce Commission must be charged with the duty of regulating rates, supervising provisions for protection of life, and guarding against favoritism and discrimination, surely all these duties must be performed under government ownership.

The conflicting interests of competing shipping points would exist under government ownership just as they exist to-day.

Every section of the country and every industry would be before the managing board of the government railway system asking for reduced rates on certain commodities, or between certain points.

Every community would be before the Board asking for improved service, improved equipment and extension of lines.

Where the Interstate Commerce Commission has one problem to solve now, it would have ten under government ownership.

It cannot be expected that discrimination will be eliminated under government ownership. Those who anticipate any such reform need only recall the serious differences that have arisen already in the Federal Reserve Board over the effort of the Secretary of the Treasury to extend special favors in financial matters to one section of the United States.

Another proof that we would have discrimination—unfair discrimination—under government ownership, may be found in the records of the Post Office Department, where such discrimination has been practiced. In 1910 Postmaster General Hitchcock ordered the establishment of what is known as the "Blue Tag" service, under which certain publications were ordered transported on freight trains, while rival publications of very similar character and competing for the same trade, were continued in the mails.

Please remember that although these magazines which were ordered transported on freight trains paid exactly the same rate of postage and were admitted to the mails under exactly the same laws as those that were continued on fast mail trains, yet they received, under the Postmaster General's deliberate order, a far less efficient character of service.

When such a discrimination can be made in the postal service, who can doubt that there would be similar discrimination under government ownership and operation of the railroads?

Government ownership of telegraph and telephone lines would result in intermittent press censorship and continuous press subservience to the administration in power, thereby utterly destroying our zealously guarded "freedom of the press."

Discriminations no doubt exist to some extent to-day, but they have been reduced to a minimum. The point I wish to impress upon your minds is that government ownership would not relieve the country of the necessity of government regulation.

If government regulation is a failure to-day, we have no good reason to believe it would be a success under government ownership. We cannot hope to secure for the management of a government owned railroad system men who are more honest or more capable or more aggressive in the performance of their duty than are the members of the Interstate Commerce Commission and the officers of the Department of Justice.

If they cannot succeed in enforcing the law and in preventing discrimination, we cannot expect them to establish and maintain equitable service under government ownership.

If a member of the President's Cabinet will undertake to favor one section of the United States in the operation of a currency and banking law, some other member of the President's Cabinet would attempt to favor some section of the country in the management of government railroads under its control.

Therefore, I assert again that if government regulation is a failure, government ownership will be a failure, and if government regulation is a success, the reason for government ownership is eliminated.

The economic objection to government ownership is the one I deem of least, and, in fact, of very slight relative importance. I am not one of those who think that government ownership would lead to financial disaster, or ruin of the transportation service, or the destruction of internal commerce. I have no doubt whatever that the government could acquire the railroads, operate them with a fair regree of success, inaugurate some reforms and save some waste through the elimination of duplication. But I am also convinced that while the government, as the owner and operator of the railroads, would likely inaugurate improvements in some respects, these would be more than offset by deterioration in the service in other ways, and that the economies accomplished by elimination of duplication would be more than cunterbalanced by increased expenses in other respects.

It seems to me to be absurd to argue, as some gentlemen do, that the government could take over the railroads, provide better equipment, install the most up-to-date and expensive appliances for the protection of employes and passengers, increase the wages and reduce the hours of employes, and at the same time give service as good as now rendered at a less cost.

That every practicable precaution should be taken for the protection of life, no one will question. This, as I understand it, the Interstate Commerce Commission now has the power to require. I have no doubt whatever that it has ordered the installation of protective equipment as rapidly as it deemed practicable.

Undoubtedly there is some waste in the present system of management because competing roads maintain more frequent train service than is necessary between certain points, through an effort on the part of each to secure as large a share as possible of the traffic. The elimination of some of the trains would mean a somewhat reduced service, a correspondingly reduced cost and a consequent saving. I can not agree, however, with those who believe that this reduction in service, due to the elimination of competition, and reduction of supervisory organization in the management due to the consolidation of all the railway systems into one, would effect any economy whatever, when allowance is made for the increased number of employes incident to government ownership. That it costs the government more to perform service than it does a private concern is so generally recognized that it requires no demonstration.

Under present conditions, passenger and freight rates are practically uniform on competing lines and the only competition is in the matter of service. The effort of the managers is to secure a larger portion of the traffic by providing superior facilities and rendering superior service. With the elimination of competition under government ownership, this incentive would be entirely removed. At the present time, every employe is urged by his superiors and compelled by his own desire to retain his position and secure promotion by demonstrated ability, to put forth every effort to secure business for his company by offering the traveler and the shipper the best service practicable. Under government ownership that incentive would be removed. The employe would perform his routine service with faithfulness, no doubt, but without putting forth unusual effort.

One of the arguments made in behalf of government ownership is that it would mean increased compensation to railroad employes. That this result would be realized, no one will question, nor shall I assert that it ought not be realized. What I do contend is that the advocates of government ownership who base their arguments upon economic reasons, err in their contention that the government can both increase compensation of employes and reduce the cost of transportation to the shipper.

The average compensation of the present railway employe is about $723 per annum. The lowest salary paid to the railway mail clerk, during the first year of his employment, when he is performing practically unskilled service, is $900 per year. The average compensation of the railway employe is therefore below the least compensation of railway mail clerks in the employ of the government.

If the average compensation of railway employes should be increased one third, which is a very conservative estimate of the increase that would be experienced under government ownership, the total addition to the compensation account would be $400,000,000 annually—the present pay roll of the railroads amounting to over $1,200,000,000 in round numbers.

My assertion that government ownership would be less efficient is based to a large extent upon a personal experience I had some four years ago. On December 21, 1910, by the adoption of a resolution which I introduced, the Senate called upon the President to inform the Senate as to the total number of officers and employes of the Government, exclusive of enlisted men in the army and navy. Sixty-five days elapsed before the information was transmitted to the Senate, it being received on the evening of February 24, 1911.

While waiting for the receipt of this information, I became curious to know how long it would take large corporations to supply similar information regarding their own service. I therefore addressed letters to the Standard Oil Company, the United States Steel Company, and the Western Union Telegraph Company, asking them how long it would take them to supply the information. The Standard Oil Company replied that it could supply the information in three days; the Western Union could supply it within a few days. I received no response from the United States Steel Company.

It was a cause of great surprise to me that it should take the departments of the government, all located in Washington, sixty-five days to inform the Senate as to the number of their employes, when all appointments are made from Washington and all pay rolls audited there.

The Post Office Department and its service is frequently lauded, especially by Postmasters General and their assistants, for its efficiency and economy. Let us analyze: Mail is deposited by citizens in post offices and letter boxes, picked up by postal employes, carried to assembling points, routed for destinations, delivered to privately owned railroads, transported by them all over the country; received by postal employes and distributed in postoffice boxes or by carriers to the addresses. Could this service be performed without the privately owned railroads? Is the Post Office Department entitled to sole credit for this activity? Are not the railroads entitled to some credit for safe and expeditious transportation all over the country, especially when public opinion compels them to carry the mail, and at rates which I am satisfied after two years' special study of the subject are too low?

I have no desire to minimize the credit due the postal mail collectors, clerks and distributers, yet comparison with large mail order houses, where I have known a mail order for twelve different articles from eight different departments to be filled, with packages on the platform at the car within four hours from the time of the receipt of the letter containing the order, shows an efficiency and organization in the mail order house that does not exist in the postal department, because of better executive direction in the former than exists in the latter.

The head of a mail order house or other large business establishment engaged in distribution devotes his time to increased efficiency, better service and intelligent economies, while a Postmaster General's time is too apt to be consumed in an effort to build up a political organization by the distribution of nearly 60,000 postoffices among the faithful followers of the Administration.

Successful private business is run on the merit and promotion plan, while we are prone to run the Government on the demerit and demotion basis.

In this discussion I make very little use of statistics, for it has been my observation and experience that statistics are very unreliable and are very likely to be misleading, even when used with the best of intentions. Statistics are quite frequently derived from a prejudiced source and usually selected and used to support preconceived ideas.

Let me elaborate a little on my statement that I have found statistics unreliable.

You will all remember that the Postmaster General of the last Administration declared in his last annual report that he had succeeded in placing the Post Office Department on a self-supporting basis and had a surplus of $219,000 as proof. The first report of his successor, the Postmaster General of the present Administration, challenged this statement and asserted that the apparent surplus was produced by a "faulty method of accounting" and that instead of a surplus there was in reality a deficit of $732,000.

I shall not take your time to enter into a discussion of the relative merits of the two assertions which involve a difference of $951,000. It is sufficient to know the indisputable fact that one of the Postmasters General was wrong. The incident serves to illustrate not only the unreliability of statistics, but the probability that government statistics are manipulated to suit the purposes of the management of the department.

Just as it was to the interest of the Postmaster General of the last Administration to make a bookkeeping showing of a surplus in the management of the Department of which he was the head, so it is to the interest of the management of government owned railroads of every country in the world to make the record show successful management. Because of the personal interest of those in control, the statistics which they make public should be viewed with care and accepted as true only after the most thorough scrutiny.

It is not necessary that statistics be inaccurate or used with dishonest intent in order to be misleading. Correct figures may be used with the utmost good purpose and yet lead to erroneous inferences.

For example: In an article in the *Saturday Evening Post* of June 6, 1914, Governor Stubbs said: "During the year 1913 the railroad companies of the United States received in revenue $3,171,000,000. There are in this country approximately twenty million families of five persons each. The average cost of living for these families last year was approximately $625 each. Railroad transportation cost each of these families an average of $158.50, or a quarter of its total expense."

Later Mr. Stubbs refers to this railroad revenue as a "tax." While Mr. Stubbs does not say in express words what conclusion he wishes drawn from his use of these figures, the unexpressed inference is that each family was mulcted to the extent of an average of $158.50 during the year.

In a reply to the Stubbs's article, President Ripley, of the Santa Fe, presented what he termed a "*reductio ad absurdum*," in which he enumerated nine items of family expense which totaled $12,848,000,000, or an average of $642.35 per family. These items did not include food, clothing or rent yet they exceeded the total average cost of living.

The thought that occurs to me in connection with the manner of presentation which Mr. Stubbs has adopted is this:

If a computation of the average revenue of the railroads per family is pertinent to a discussion of government ownership of railroads, why is it not also pertinent to compute the average railroad expenditure per family? If the railroads are to be charged with the revenue collected, why not credit them with the money expended?

I have not at hand the documents from which Governor Stubbs secured his statistics as to the total revenue of the railroads of the United States. I have here, however, the text of the 1912 report of the Interstate Commerce Commission, covering the financial operations of 246,828 miles of roads that reported to that body. The report does not state the amount of the total income of the railroads, but by addition I ascertain that the report shows for this mileage of roads a total income from all sources of $2,905,596,275, or an average of almost $150 per family, assuming that there are twenty million families in the United States. These same roads paid out for wages, supplies, taxes, interest and dividends, a total of $2,942,682,321, or an average of over $147 per family. The remainder of the income was spent for additions, betterments, new lines, extensions and reserves.

In this connection the following table on ton-mile revenue and distribution may be interesting to some:

Average receipts per ton-mile	0.744 cent
Distributed as follows:	
Wages	0.321 "
Material and supplies	0.200 "
Taxes	0.030 "
Rentals (net)	0.012 "
Interest (net)	0.108 "
Balance for stockholders, to cover adjustments, improvements, dividends and surplus	0.073 "

The average rate of dividend on all railway stock in 1912 was 4.64 per cent.

The average rate of interest accrued on all railway funded debt in 1912 was 4.22 per cent. This represents interest legally accrued and charged by the railways to their income account, whether the interest was actually paid to the bondholders or not. In other words, this covers interest defaulted as well as interest paid. If the amount of defaulted interest could be ascertained and subtracted from the total amount of accrued interest, this rate would unquestionably be somewhat smaller.

Personally, I see nothing pertinent in the computation of the average railroad revenue per family, but, if there is any force in the presentation of the figures as to income, I submit that the average railroad expenditure per family is just as pertinent and the averages are so nearly the same as practically to counterbalance.

In 1879 Congress directed the Postmaster General to secure from the railroad companies transporting mail certain information relative to operating receipts and expenditures, the purpose being ascertainment for proper compensation for railroad mail transportation. Intermittent attention was paid to this Congressional direction, and in 1907 a departmental commission of five was appointed by Postmaster General Cortelyou. Over 140 questions were prepared and propounded to the 795 steam railroads then carrying mail.

It cost the railroads $250,000 to furnish the information and the government a direct out-of-pocket cost of $19,423 for tabulation of the information contained in the railroads' answers which is set forth in Document No. 105, 62d Congress, 1st Session, and reported to Congress August 12, 1911. Accompanying said document was a suggested draft of a bill endorsed by Postmaster General Hitchcock, accompanied by a letter conveying the impression that the result of the adoption of such legislation would be a saving to the government of about $9,000,000 in railway mail pay.

Here we have a concrete result of four years' research work in a department at a total expense of practically $270,000—a good investment if the many departmental examples of pitiful vacillation, unreliable data and estimates cause Congress to check all departmental figures and decline to follow blindly departmental suggestions.

Study of the bill showed that Mr. Hitchcock and his assistants had failed to realize that rights of way, roadbeds, track, equipment and terminals were necessary prerequisites in the operation of mail cars, for in his method of payment, he had made no allowance whatever for capital charges, recommending that the government only allow 6 per cent on the ascertained cost to the railroad companies for carrying the mail, and his predicted $9,000,000 to the Government was based entirely on this premise.

Fortunately Congress had created a Joint Congressional Committee which made an exhaustive study of the subject. With tardy realization of the absolute fallacy and injustice of his first suggested plan, Postmaster General Hitchcock, on January 23, 1913, submitted a second draft of bill for regulating of railway mail pay. Study of this plan by the Joint Congressional Committee soon demonstrated that the plan was practically unadministrable and certainly undesirable.

On February 12, 1914, a third plan, in the nature of a tentative draft, was submitted, and the Joint Congressional Committee was soon satisfied that same was unscientific and most undesirable, giving unnecessary and dangerous powers to the Postmaster General and containing rates, which, if adopted, would be absolutely confiscatory.

The Joint Committee's demonstration and the ultimate realization in the part of the Department of its mistake in its third bill resulted in the submission to the House of Representatives of a draft of what is known as H. R. 17042, introduced in the House of Representatives on June 4, 1914, Sections 13, 14 and 15 of which cover "Compensation for the Transportation of Mail." The Joint Congressional Committee again demonstrated the Department's suggested rates under its new plan to be absolutely confiscatory.

Here we had four departmental plans suggested and urged for enactment within a period of three years, each differing from the others in fundamental features, but all seeking further dictatorial and plenary powers for the Postmaster General. Do you expect successful government ownership of railroads under such a vacillating management as that?

During the nearly two years' study made by the Congressional Joint Committee the Department presented estimates of annual overpayments to the railroads to the amounts of $9,000,000, $10,531,792, $1,615,532, $319,832 and $221,832. Many other instances of very inadequate and unreliable statistics furnished by the Post Office Department during this investigation could be cited.

Very similar was the experience of a Congressional Committee between 1898 and 1901, when the Department submitted statistics that the railroads were paid on an average of 6.58 cents per pound for transporting mail, averaging 40 cents per ton-mile, with an average haul of 328 miles, whereas a special weighing demonstrated that the average payment was, in fact, 2.75 cents per pound, averaging only 12.56 cents per ton-mile, with an average haul of 438 miles.

Commenting upon these statistics, Congressman Moody, afterwards a Justice of the Supreme Court, said:

"In other words, we were not paying one third as much as the Post Office Department had led the people of the country to believe we had been paying."

The commission appointed in 1911 to investigate the subject of postage on second-class mail matter, of which commission Justice Hughes, of the Supreme Court, was chairman, had a similar experience. It repeatedly found the statistics submitted by the Post Office Department to be erroneous and the Department changed its figures when compelled to do so by demonstration of their inaccuracy. So glaring and numerous were the errors that the commission commented upon them as follows:

"It seems hardly worth while to include subsidiary tables from which these results are taken or to criticize the details, as the commission has little confidence in their accuracy."

I have made frequent references to the Post Office Department, not through any desire to specially criticize that Department, but because the postal service is the only government activity which corresponds with the government ownership and operation of railroads and furnishes the only demonstration based upon experience of what we might expect under government ownership of railroads and other national public utilities.

I recognize the fact that evils exist in every line of human activity and that remedies must be provided. My own theory is that government should leave as large opportunity as possible for individual enterprise and industry, holding out as an incentive the assurance of enjoyment of the rewards of legitimate endeavor. In order that opportunities may be equally open to all, wrongful acts must be prohibited by criminal statutes which should impose penalties so severe and make punishment so certain that violation will be extremely rare. This assurance of a large degree of liberty and also definite restriction upon improper action, should not depend upon the varying whims or prejudices or even the sound judgment of bureau heads, but should be prescribed by act of the lawmaking body established by the Constitution, so that every citizen can read in the plain langauge of the statute the extent of his rights and the limitation upon his liberty.

No one will condemn more severely than I the wrongful acts of corporation managers who have pillaged their stockholders or wrecked the institutions over which they had control. Deeds of such character should be made criminal by law, if not already so defined, and prison doors should swing open to receive and confine the culprit who is unfaithful to his trust.

But eradication of evils of this kind does not require government ownership. There is no need to stifle individual enterprise, ambition and energy in order to prevent repetition of wrongful acts. Advocates of government ownership propose a remedy worse than the disease. In the misguided effort to cure evils in railroad finance, they would fasten upon the nation evils far more serious, far more insidious, more deeply affecting the welfare of present and future generations, striking at the very vitals of truly representative government.

For my part, I have not lost confidence in government by law. I am not convinced that the crooks in railroading so far outnumber the honest men that elimination of the dishonest is hopeless. The day is not near so dark nor the prospect so gloomy as some would have us believe. There is still a preponderance of good among the American people and we have not yet reached the time when we must write upon the pages of our history the declaration that we shall buy the railroads because we cannot control the crooks.

I am not satisfied that efficiency goes with government employment. I am not ready to give my approval to a plan which means the establishment of a political machine composed of three million government employes and their relatives and friends. I have the utmost confidence that if Congress will take its magnifying glass off the White House and relieve itself of the delusion that a citizen becomes an omnipotent statesman as soon as he has become President by virtue of the votes of 42 per cent of the electorate, we shall be able to solve a considerable number of the problems that now confront us, and without placing a check upon that marvelous American enterprise which is justly the admiration of the civilized world. I believe the American people still have confidence in representative government and that when they realize the trend of public affairs they will rebuke the effort to establish one-man government wih dictatorship from the executive mansion.

Why the American Press Should Defend the Nation's Railways

NOTE.—One of the encouraging developments of recent months has been the almost unanimous support given by the daily press of the country to the carriers' demand for a more liberal consideration of the many grave problems with which they are struggling and upon the solution of which depends the efficiency of our transportation plant. The St. Louis *Republic,* a daily newspaper, recently received a letter from an attorney of that city who wanted to know just what course it advocated with respect to the railroads. The correspondent referred to the financial manipulations of Jay Gould and the more recent history of the New Haven and Frisco systems as "brazen examples," and said: "And yet your great paper has seen fit to illustrate the injustice done the railroads by comparing their business with blacksmithing and other similar honest enterprises, and then asking why should not the railroads be treated likewise. Do you mean to say that a thief should be treated the same as an honest man? That a thieving enterprise, which has already proven itself such, is to be compared with those of the best established probity?" The St. Louis *Republic* replied to this accusation on November 20th in a lengthy editorial which defines its attitude and which is reproduced in full in the following paragraphs:

THE last thing in the world the *Republic* desires to do is to blink at even one chapter in the history of railroad misdeeds. Our correspondent has only begun on the list. We would refer him to "Chapters of Erie" and the "Book of Daniel Drew" in order to trace back to the beginning the worst practices which have disgraced the history of railroad financiering. He has said nothing of the Harriman looting of the Alton, the Illinois Central car repair frauds, the waterlogging of the Rock Island by the Reid crowd, etc. These are recent events, and they come close home to St. Louis. Anyone who discusses the railroad problem, from whatever angle, who ignores them and their consequences will have little influence with the public. And now we want to make a declaration, and admission and a reference to changed conditions.

I.

The declaration is this: that it is wrong, unfair and misleading to accept these things as typical of railroad conditions. Take, for example, the most flagrant of the lot—the action of that railroad Jekyll and Hyde, Edward Harriman, who did some of the best and some of the worst things ever done in American railroading, in taking the profitable, well-organized, well-financed Chicago and Alton, manufacturing a wagonload of securities out of nothing and leaving the road looted and drained. That, says the objector, is railroad history. But what of the long years under the Blackstone management, when the road paid its debts promptly, scrupulously refrained from all extravagance and show and was an example of sound conservatism and strict economy? Is not that railroad history? The years of honest and economical operation were many; the period of loot and wreck was short. Is the latter more typical of American railroading than the former? Which is the more significant: the fact of the Alton's long upbuilding or the fact that in an evil hour it fell among thieves?

Our correspondent is urged to look into the financial history of the Pennsylvania Railroad, the New York Central, the Delaware, Lackawanna and Western, the Burlington, the Chicago and North Western, the Louisville and Nashville —to take the first half dozen that come in mind. These roads have kept faith with the investing public, developed the regions through which they run, exemplified the best railroad practice in those regions, avoided waste. These are facts of railroad history. Is not the story of the good fortune of Pennsylvania stockholders as important as that of the bad fortune of New Haven stockholders? Is not the straight honesty of North Western financiering under Marvin Hughitt as much a fact as the dubious deals of the gentlemen who bought things which they also sold on the Frisco? Is not the history of the Burlington as much a part of the railroad history of the West as the story of the car-repair frauds on the Illinois Central?

The mileage of roads that have fleeced the investor is short compared with that of roads which have never figured much in the papers because in the railroad world honesty is "not news"; it takes scoundrelism to command headlines. More: in every transportation district in the United States rates have been determined in open competition by well-managed roads, and the badly managed ones have, therefore, not oppressed the shipping and traveling public. And there is not a corner of the United States where railroad management has been bad enough to bring rates up as high as they are on the state-owned roads of Europe. We have the cheapest rail transportation on the globe.

II.

Now for the admission. Bad practices have in the past been followed by every road in the United States in the matter of special favors to individuals; but in every case the public were equal sinners with the railroads. And with the general advance in morals the standards of both railroads and public have been raised. The railroads used to distribute hundreds of free passes in Missouri when the great parties held state conventions. Let us suppose that in order to carry workers to such a convention at Springfield or

Sedalia 1,500 passes were distributed. One railroad did wrong—and so did 1,500 citizens, while the managers of a great political party winked at the abuse. The recollection is humiliating, but it is flat hypocrisy to remember the guilt of the railroad and forget that of 1,500 citizens and a job lot of statesmen. We have all come to see straighter—and to act straighter. And we were all in it together—railroads, rebate-taking shippers and riders on pasess. Perhaps our correspondent himself has ridden on a pass. These evil practices were very different from railroad looting by the few Harrimans and Fisks and Drews. Railroad looting was purely a railroad abuse; but the rebate and pass evils were community abuses and disappeared when community morals got better.

III.

And now for the reference to present conditions. Rebate-giving is to-day on the same basis as assault and battery and petty larceny—not wholly abolished, but contrary to law and prosecuted when practiced. Passes have passed and the enthusiastic ward-heeler who journeys to a political gathering pays his fare. The Interstate Commerce Commission says just how the railroads shall keep their books and require universal publicity. It says how much the railroads shall receive for carrying passengers and freight. Now the railroads, a few weeks since, joined in an appeal to President Wilson in which they said that in 1914 their gross earnings were $44,000,000 less than for the year before and their expenses of operation and taxes were $76,000,000 more; they said that before the end of next year they had bonds and notes to the amount of $520,000,000 maturing and that with so bad a showing they could not get the money necessary to take care of them. They asked the President to call the country's attention to the need of the support of railroad credit and to urge that additional revenue be provided for them. To which the President replied that their statement was "a lucid statement of plain truth" and that he was confident that there would be "active and earnest co-operation" by "men both in and out of official position" in meeting the railroads' appeal.

IV.

To sum up: America has the cheapest and best railroad transportation in the world. The few though conspicuous instances of railroad wrecking have hurt not the shipper or passenger but the investor. Since they took place the Interstate Commerce Commission has taken over the supervision of all railroad bookkeeping. The pass and rebate evils have been abolished; they were the fault of railroad and community alike. And now, with their rates fixed by law and their accounts literally "an open book," when the roads say to a president of the United States who is one of the great reformers of his time that their need of more revenue is acute on account of increasing expenses and falling income, he calls their representations "a lucid statement of plain truth." We see no inconsistency in comparing the average railroad official, who has always been as honest and clean as any other business man, to the honest blacksmith. There are occasional railroad men and blacksmiths who are scoundrels. In the old days when the railroads gave passes and rebates the blacksmith rode on the first at times and received the second. Both have reformed. And the rank and file of both callings have served their fellows better than the blacksmiths and railroad men of any other country of the modern world.

Inland Boat Service

By FRANK ANDREWS.

(Abstract of Bulletin No. 74 of the U. S. Department of Agriculture.)

RIVER TRAFFIC DEFINED.

RIVER transportation is to be distinguished from the traffic by coastwise vessels and on the Great Lakes. Conditions are different in many respects between the river transportation and that conducted by the large vessels on deep water. One point of difference lies in the size of the river boats as compared with the lake and coastwise vessels. A large freight steamer on the Great Lakes will carry as much as 400,000 bushels of wheat at one load. On June 30, 1912, the average gross tonnage of vessels on the Great Lakes was 876 tons of 100 cubic feet, while the average for vessels on the Western rivers was only 78 tons measurement. The carrying capacity of river steamboats is increased by the use of barges. This is especially true in the shipment of coal from the Pittsburgh region to New Orleans. From 30 to 50 or more barges, each carrying about 1,000 tons (of 2,000 pounds), may be moved by a single towboat. In ordinary river freight service, one or more barges may be taken, especially when a lot of lumber or brick is to be carried. The use of a large number of barges is not practicable in the Great Lakes or the coastwise traffic, because the rough water would make it difficult, if not impossible, to handle them. Towing is done on the lakes and ocean, but the vessels towed are larger in size than the river barges and only a few are taken at a time.

RELATIVE IMPORTANCE OF RIVER TRAFFIC.

The relative importance of receipts by river may be compared with the total receipts by rail and water of various farm products at some leading river ports. A considerable fraction of the wheat and corn received at Baltimore, Md., comes from landings along rivers which are tributary to Chesapeake Bay and is carried partly by steamboats and partly by sail vessels. During the five years ending with 1912 these receipts by water at Baltimore ranged from 10 to nearly 30 per cent of the total receipts of wheat and from 3 to nearly 15 per cent of the total receipts of corn.

Cincinnati, Ohio, also has a large river trade in some products, notably tobacco. Of the total receipts of tobacco during the five years ending with 1908, from 10 to 20 per cent came by river boats. This applies to tobacco packed in hogsheads, which formed all but a small fraction of the traffic in that commodity. For other articles the relative importance of the river trade was not so great. During the five years mentioned about 5 per cent of the total receipts of eggs were brought in by steamboat. Apple receipts averaged from about one third of one per cent of the total to more than 12 per cent. Relatively little of the grain brought to the city came by river, the average being considerably less than 1 per cent of the total. In regard to live stock, the river traffic in cattle constituted 1 to 2 per cent in each of the five years in question, while for sheep the average was between 2 and 3 per cent, and for hogs the average was about 4 per cent of the total receipts from all sources.

One of the principal items in the freight received at St. Louis by boats is apples, which are brought in large quantities from Calhoun county, Ill. This county, consisting of a long strip of land bounded on three sides by the Mississippi and Illinois rivers, has no railroads and depends upon river boats for transportation. In 1911, 54 per cent of the barreled apples received at St. Louis came by river, and in 1912 the river receipts exceeded 49 per cent of the total receipts by all routes. Also, from 2 to 5 per cent of the eggs, from 4 to nearly 7 per cent of the cotton, from 1½ to 2 per cent of the sheep, and from 2¼ to 3½ per cent of the hogs received at this city in 1908-1912 came by water.

Statistics of river trade at Memphis and New Orleans show relatively large receipts of cotton. At Memphis, during the five years ending with 1912, from 10 to nearly 14 per cent and at New Orleans from nearly 4 to more than 7 per cent of all cotton received was carried by boat.

TYPICAL STEAMBOAT ROUTES.

The actual routes followed by steamboat lines in various parts of the United States have certain characteristics which differ according to location. The Hudson River has a variety of traffic. One class consists in the through service between New York City and Albany; another class of traffic is composed of numerous routes centering at various important cities along the way; and a third class is the canal-boat traffic on the way from the Erie Canal to tidewater.

Another important system of waterways is that of Chesapeake Bay and its tributaries. Traffic on this bay radiates from the principal cities—Baltimore, Washington, and Norfolk. The usual local steamboat trip from Baltimore begins late in the afternoon, the boat reaching the mouth of some river early the following morning, possibly some hours before daybreak. Here the first landing is made, which is followed by other landings up to the head of navigation. After a few hours at the terminus the boat starts on its return trip, often reaching the mouth of the river and entering Chesapeake Bay by nightfall and arriving at Baltimore early the next morning. This applies to a route of average length and of average distance from Baltimore. Some of the longer routes require 40 or more hours for transit one way, and on some of the shorter ones the round trip is made within a day.

Through service between Baltimore and Norfolk, Baltimore and Philadelphia, Norfolk and Washington, and between Norfolk and Richmond is maintained throughout the year by regular lines of boats. Over each of these routes the trip is made in a single night and the schedules are maintained as regularly as on railroads.

South of Virginia the Atlantic plain becomes wider and the navigable rivers extend farther inland, thus affording a wider reach from the coast for steamboat traffic than is afforded farther north. Steamboat traffic here begins to differ somewhat from the traffic on tidal waters and shows some points of resemblance to that of the Mississippi Valley. The long route from Baltimore to Fredericksburg, 285 miles, is not directly inland, but extends more than halfway parallel to the coast, the Rappahannock River itself measuring but 106 miles from its mouth to Fredericksburg; but from Savannah to Augusta the 202-mile route extends inland, as does the 370-mile route from Brunswick up the Altahama and Ocmulgee rivers to Macon.

Numerous other routes are followed by steamboats on the inland waterways of the Atlantic coast and are mostly characterized by regularity of service and by lack of hindrances to navigation, except on the northern waterways in winter.

The principal steamboat routes of the Mississippi Valley and Gulf Coast may be grouped according to some central river port, as Cincinnati, St. Louis, Memphis, Vicksburg, New Orleans, or Mobile. From Cincinnati regular lines of boats extend up the Ohio River as far as Pittsburgh and down the Ohio and Mississippi to Memphis; up the Ohio and Great Kanawha to Charleston, W. Va.; and an important line plies nightly between Cincinnati and Louisville. In addition to these, a number of other lines give regular service at Cincinnati. The longest route followed regularly from Cincinnati is the one to Memphis, 749 miles away. From Cincinnati to Pittsburgh the distance is 470 miles; from Cincinnati to Charleston, 263; and from Cincinnati to Louisville the distance is 128 miles.

From St. Louis regular lines reach to St. Paul on the upper Mississippi and to Memphis on the lower; and extend also up the Missouri River to Kansas City, up the Illinois to Peoria, and on the Mississippi, Ohio, and Tennessee rivers to Waterloo, Ala.

Steamboat lines from Memphis reach points as far down the Mississippi River as Vicksburg, the up-river boats, as has been said, running from Memphis as far as St. Louis on the one hand and Cincinnati on the other.

Another important steamboat center in the Mississippi Valley is New Orleans. From this port steamboats serve landings as far up the Mississippi River as Vicksburg, and at least one line of boats follows the Mississippi, Red, and Black rivers up to Harrisonburg, La.

Various other routes are followed through the network of rivers, bayous, and canals in the traffic between New Orleans and numerous towns and landings in southern Louisiana; and another group of steamboat routes from New Orleans consists of those reaching points on Lake Pontchartrain.

The old route from New Orleans to St. Louis on the one hand, or to Cincinnati on the other, is no longer followed by any one line of boats. From the pioneer days of steamboating until a few decades after the Civil War, New Orleans was reached by lines terminating at St. Louis and Cincinnati, but with the development of railroads and improvement of their service steamboat traffic gradually changed in its nature, so that the bulk of the freight movement became local, and long-distance shipments grew less and less important. With the passing of the Anchor Line in the early nineties, St. Louis ceased to be connected with the city of New Orleans by any direct line of packets, and about ten years later through freight service also ceased when the line of barges and towboats operated by the Mississippi Valley Transportation Company went out of business. The through traffic consisting of large tows of coal barges, taken from Pittsburgh down to New Orleans, is not to be classed with regular steamboat-line service, which is conducted according to fixed schedules of arrivals and departures.

One important system of waterways on the Pacific Coast consists of the rivers emptying into San Francisco Bay; the Sacramento from the north and the San Joaquin from the south. The delta near the junction of these two rivers affords a number of channels which are used by various boats and which afford transportation to a rich truck region not conveniently reached by rail. The principal centers of steamboat traffic here are San Francisco, Sacramento, and Stockton.

A second important system of waterways consists of the Columbia River and its tributaries. On the lower section of the river steamboats from Portland, on the Williamette a few miles from the Columbia, run down the Columbia to Astoria and others run up the river as far as Celilo Falls. Other routes extend from just above the falls to various points on the upper Columbia and Snake rivers.

LOCAL TRAFFIC.

The steamboat routes thus described illustrate the fact that river traffic is generally local. A few hundred miles is usually the maximum length of the route of any one line of steamboats. In fact, it may be said that a run of 400 miles or more is exceptional. Of 92 typical routes in Table 4 only 16 are more than 250 miles in length, which is slightly more than the average length of haul for all freight carried on railroads in the United States. In other words, steamboat traffic is distinctly short-haul traffic.

CHARACTERISTICS OF STEAMBOAT FREIGHT RATES.

There is a great variety of freight tariffs for steamboat river trade. The unit of quantity in some cases is 100 pounds or the short ton, and in others the package. Some boats quote rates for carlots lower than for less than carlots, as is done in railroad freight tariffs. Specific conditions give rise in many cases to specific rates. A certain commodity may be carried in one direction for a lower rate than in another, if the trade in the favored direction is large enough to justify special concessions in order to obtain it. Distance frequently has little or no influence upon the rate charged by boat. Sometimes over an entire route the same rate will be charged between any two landings regardless of distance.

The rates shown in this article were collected in the fall of 1912 from steamboat men throughout the country.

The minimum charge for a single shipment by water is by no means uniform throughout the country. In Louisiana the minimum charge for a single package was 10 cents and for a single shipment is 25 cents, but if the boat has to make a special landing for a single shipment the charge was at least 50 cents. The steamboat tariff authorized by the State of Alabama specified a minimum charge of 15 cents on a single shipment.

An example of the variety of packages taken as bases for steamboat freight rates is afforded in the Potomac River trade, between landings down the river and Washington. Rates on apples were as follows: 30 cents per sugar barrel, 25 cents per flour barrel, 15 cents per half-barrel basket, 12 cents per bushel basket, 10 cents per box, 15 cents per bag, and 13 cents per small carrier; also 15 cents per two-basket carrier, and 8 cents per basket of five-eighths of a bushel.

A large amount of freight is carried between Baltimore and Norfolk by bay steamers. This traffic, except where commodity rates apply, is subject to the Southern Classification, which ranged from 10 cents per 100 pounds for class 6 to 26 cents for class 1, and from 10 cents per 100 pounds for class A to 16 cents for class B and class H. An important group of commodities carried over this route consists of fresh fruits and vegetables. Some of the freight rates applying to these products are of considerable importance to the fruit and truck industry of the Norfolk region. The following rates applied in 1912 to shipments from Norfolk to Baltimore: Berries were charged from 18 cents per crate of 24 quarts to 42 cents per 60-quart crate; fresh fruits, 7 cents per bushel box, 11 cents per half-barrel box or carrier, 20 cents per standard vegetable barrel, and 25 cents per sugar barrel; cabbage, cucumbers, and spinach, 15 cents per flour barrel and 20 cents per sugar barrel; lettuce and potatoes, 20 cents per flour barrel and 23 cents per sugar barrel; tomatoes, 11 cents per half-barrel carrier; and watermelons, 2½ cents each. The charge on cotton in square bales was 40 cents per bale if compressed, and 50 cents if not compressed. Cotton in cylindrical bales was charged at the rate of 10 cents per 100 pounds.

FREIGHT TARIFF ZONES.

An example of the application of what may be termed "zone rates" is afforded by the tariffs established by the Railroad Commission of Alabama for the Alabama and Tombigbee rivers. Freight tariff No. 3 of this series applies to shipments between Mobile and three principal cities up the river—Demopolis, Montgomery, and Selma. This tariff was based chiefly upon the Southern Classification. Cotton and cement are given special rates, but other articles were charged according to their respective "classification."

Another instance of a zone system of freight rates was that afforded on the route between Evansville, Ind., and Bowling Green, Ky., including parts of the Ohio, Green, and Big Barren rivers. There was a special tariff between Evansville and Bowling Green. Other landings divided into four groups, according to their distance from Evansville, No. 1 being the nearest to that place. The freight rate from all landings on the Tennessee River between Florence, Ala., and its mouth, to and from St. Louis, was the same for a given commodity.

DISTANCE AND TIME OF TRANSIT.

It is convenient to express the average rate of transit in miles per hour, but it should be distinctly understood that this rate should be applied to a number of hours—say, 12 or 24—in order to make a satisfactory application for practical purposes. The rate itself has been computed by dividing the total number of hours in transit into the total miles run, and includes all stops at landings. Thus, if an average rate is given as 4 miles per hour, it means that a day's run of a vessel, say of 12 hours, will cover 48 miles; or, if the rate is only 2 miles per hour, the day's run will cover possibly 24 miles; or, with 24 hours for the unit, a local boat making various landings and averaging 3 miles per hour will cover a distance of 72 miles in the 24 hours. It will be noted that the average rate of transit is subject to wide variations, some as low as 2 miles per hour and some reaching 15. This is governed partly by the speed of the boat while under way, but largely by the number of landings made in transit.

Between Cincinnati and Memphis 346 landings are reported over a distance of 749 miles, making an average of about 2 miles between landings. Between St. Louis and Memphis 318 landings are reported for 415 miles. Of the six routes in Table 5 illustrating Mississippi Valley conditions, the average distance between landings ranges from 1.30 miles to 3.31 miles.

From Baltimore, Md., to Fredericksburg, Va., a distance of 285 miles, 34 landings are reported. These are all on the Rappahannock River, extending along a distance of 106 miles, there being an average of 3.12 miles between landings. From Hartford, Conn., to New York City there are 12 intermediate landings for a certain line of steamers, which 12 landings are all on the Connecticut River, and their average distance apart is 4.33 miles. One of the fastest rates of transit on inland water routes is between Baltimore and Norfolk, a distance of 184 miles with but one intermediate stop.

Of 102 typical routes for which rates of transit are given, 15 show an average rate of less than 4 miles an hour, 22 average 4 miles to less than 6, 19 routes have an average of 6 to less than 8, and 21 routes an average of 8 and less than 10 miles per hour, making 62 out of 102 showing from 4 to less than 10 miles per hour; 25 rates of speed were 10 miles and over, 15 of them from 10 to less than 12 miles, and 10 rates were 12 miles and over. Of the 50 instances reported for the Mississippi Valley, including the Gulf slope, 29 were rates of 4 to less than 8 miles per hour, 12 rates were less than 4 miles, and 9 were 8 miles and over per hour. On the Atlantic slope 32 out of 43 rates were at least 8 miles per hour and 11 rates were less than 8 miles per hour. The nine reports from the Pacific slope showed five instance of 8 to less than 12 miles per hour and 4 to less than 8 miles per hour.

Freight Rates and Farm Prices.

In cotton traffic, quotations of the freight rates by boat in a number of instances range from about 0.9 of 1 per cent of the farm price to slightly more than 3 per cent, most of the instances noted showing less than 2 per cent. Eggs are charged from one-half of 1 to as high as 10 per cent of their farm value for water transportation. Hay, owing to its large bulk as compared with price, is frequently charged from 10 to 40 per cent of its farm price for freight. Potatoes compare with apples in the percentage of the freight rate, as based upon the average farm price. For wheat, from 3 to 15 per cent of its farm value is equivalent to the freight rate. The average farm price meant here is the price received by the farmer for delivery to shipping point, and does not include freight charge.

Railway Sanitation

Note.—From an address delivered by E. J. McCaustland before the St. Louis Railway Club.

PASSENGER railways of this country from the nature of their business offer a ready and rapid means for the spread of disease. Infected persons may occupy railway carriages and by close association with other passengers cause a wide extension of infection. The water on trains may become contaminated. Through the common methods of toilet accommodations typhoid or other germs may be scattered abroad to pollute sources of public water supplies. The common drinking cup, the roller towel, the cake of soap, and indeed many other things, may cause trouble and should be properly guarded against. It follows from these facts that railways have been obliged to meet a public demand for cleanliness, comfort and healthful conditions in a constantly increasing degree. In addition to the more pressing demands for strictly modern methods of heating, ventilation and lighting for railway carriages there has been a further insistence upon special protection of food supplies and of the water served upon the trains. These demands, it must be confessed, have not always been based on scientific knowledge, but have been, at times, conceived in pure sentiment or urged in a spirit of retaliation or reprisal. This has become a serious matter, and is particularly troublesome with railways doing an interstate business.

To meet and possibly forestall some of these difficulties the American Association of Railway Surgeons has made an attempt to get together with state and municipal health officers with a view to prevent rapid spread of disease through the agency of the railways. If health laws can be harmonized and unified as between States a long step in advance will have been taken. To the credit of the railways it must be said that they have responded in a comparatively prompt manner to the public demand for better and safer car heating and lighting. Their ventilation systems are at least as good as those of the ordinary places of public assemblage when the difficulties of their problem are taken into account.

While the dining car service on trains is usually found to be entirely satisfactory, and reasonable care is exercised as to quality and cleanliness, yet the traveling public is not generally aware of the practice of using the dining cars as sleeping places for employes. This is a practice that should be entirely discontinued in the interests of public health. The matter has received the attention of various state authorities, but like other questions of the sort, numerous different plans for relief have ben suggested and there is no general rule adopted. Whatever plans may finally be adopted, they will, of course, add to the difficulties and the expense of operation.

The quality of the water supplied to patrons by the railways should be beyond suspicion. This is of prime importance since many of the common intestinal diseases are transmitted by means of the drinking water and a supply of undoubted purity should be demanded of all who undertake to serve the public.

The Interstate Commerce Commission took action some time ago requiring all passenger railways to furnish semi-annual certificates of purity of all waters used for drinking purposes on their trains and in their stations and waiting rooms. In carrying out this regulation the various State Boards of Health have been called into co-operation and the tests have been made in state laboratories. The certificates thus secured by the railways are therefore strictly official. The effect of this order has been most excellent since it has served to unify practice throughout the country and at the same time fully satisfy the state authorities.

In the matter of handling passengers afflicted with contagious diseases only one general rule applies. Such passengers should be removed from the public conveyance at the earliest moment and placed in the hands of local health officials. In theory this is a simple matter, but in practice it is not so easy to carry out. Contagious and infectious diseases are not always readily recognized or positively identified; afflicted persons are not always tractable; local health officials do not joyously accept trouble and expense; trains must conform to schedule and conductors are human. No really satisfactory means has yet been devised to provide for the isolation and care of travelers afflicted with contagious disease, although the railways of the Northwest in conference with state health officials at Helena, Montana, in 1912, suggested regulations that have since been pretty generally adopted by the states of the Northwest.

The care of passenger cars and the provision of toilet facilities on trains have been very much improved in recent years, but without question there must be radical improvements in the near future. With all the conveniences and luxuries of this strenuous modern life, the simple, sanitary and complete removal of wastes from our palatial trains is still an unsolved problem. Furthermore, such removal as now exists, while it may satisfy the comfort and convenience of the passenger, is certain to become both a nuisance and a menace to health to other persons.

But, it will be asked, what can be done about the matter? The answer is that the time has come when we must insist that if a railroad company finds it practicable to carry large iron tanks under passenger cars for gas or for refrigerator purposes, it can and must also carry there an iron tank for sewage. If for any reason this is impracticable, earth closets with pails frequently changed may be used. Railroads must somehow cease distributing fecal and urinary matters all along their lines. The sewage tanks or pails could be emptied at selected places, either at the end of the run or, on long runs, at principal stations, precisely as water and gas are now taken into special tanks at principal stations. Of course, there would have to be disinfection from time to time, and some trouble would have to be taken to see that the sewage tanks were kept clean and free from smell, but this could be done and ought to be done. At any rate, something different from the present crude, disgusting, and dangerous practice must be devised.

The sanitation of way stations and terminals is a problem in itself. Who is not familiar with the way station privy, foul and ill-smelling with its unscreened windows, a pollution to both soil and air, a harbor for flies and a possible center for the spread of infection? Shall it always be with us? How simply and cheaply might be substituted the concrete-lined pit, and concrete floor, the tight door and the screened windows, a proper ventilation shaft and a periodic system of cleaning. These changes are coming and however inequitable it may be, they are likely to precede the same standards for the average citizen.

Finally there is another phase of railway sanitation which is the direct outgrowth of modern ideas relative to the spread of disease. It is well known that the discharges from patients suffering with such diseases as typhoid fever are highly infected and capable of spreading the disease widely if allowed to pass into a body of water used as a source of supply. Now railway lines are frequently located along streams or through watersheds from which public water supplies are taken. The roadbeds of these lines are highways for tramps and for employes and passengers. It becomes necessary at times to isolate the railroad right-of-way from the area of the watershed in order to preserve the water supply from possible pollution.

Furthermore, some authorities hold that the continuous use of railway toilets is resulting in a gradual infection of thousands of miles of roadbed. Dr. Barringer, president of the Virginia Military Institute, says: "I believe that in the well-drained, but cool and moist soil under the ties and ballast of a modern railway roadbed baptized day after day and year after year with the albuminous fluids of human excrement, the bacillus typhosus once planted in this natural culture medium, will lie forever, revitalized by new infection, perhaps, but in the meantime faculative enough to meet seasonal and other changes and remain potent. Such infection will affect people living along the line by direct contact and by the pollution of brooks, creeks, wells and other sources of water supply. It will also affect the general traveling public through the clouds of dust raised from the roadbed in the passing of trains. It is well known that travel increases one's chances of typhoid, and railroad hospitals report a very high percentage of typhoid patients among section hands. These facts all offer even a more positive reason for the abolishment of the present methods of caring for the sewage from trains."

Our Funny Language.

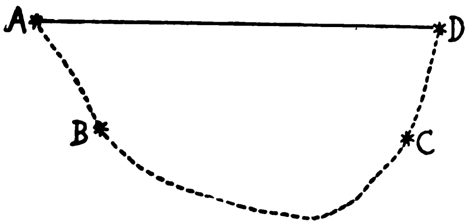
A SLEEPER is one who sleeps. A sleeper is that in which a sleeper sleeps. A sleeper is that on which the sleeper runs while the sleeper sleeps. Therefore, while the sleeper sleeps in the sleeper, the sleeper carries the sleeper over the sleeper under the sleeper until the sleeper, which carries the sleeper, jumps the sleeper and wakes the sleeper in the sleeper by striking the sleeper under the sleeper on the sleeper, and there is no longer any sleep for the sleeper sleeping in the sleeper on the sleeper.—"Ladies' Home Journal."

Competition of Routes

The following paragraphs are taken from an article appearing in the December *American Economic Review*, entitled, "The Competition of Transportation Companies," prepared by Harry Gunnison Brown, of Yale University. In his article Mr. Brown discusses four different kinds of competition, namely, Competition of Different Lines of the Same Route, Competition of Routes, Competition of Directions and Competition of Locations. It is that part of his article which refers specifically to Competition of Routes, that is herewith reproduced.

COMPETITION of routes may exist between navigation companies or railroad companies or both. By competition of routes is meant competition between two or more different routes or lines of transportation, either or any of which can carry goods between two given points. Such a competition, for example, is that which obtains between Chicago and New York. These cities are joined by a number of transportation lines. Goods moving between these two points have a choice of routes; and the tendency is for the goods to be sent, in each case, by that route which is, for the shipper, most economical considering rates, speed, liability to injury, etc. The transportation of wheat, corn, and other farm products from American centers of production to Europe, by any one of many routes, is another example.

FIGURE 1



Other things equal, roundabout transportation is uneconomical. It costs more to carry goods by a long than by a short route between two given points. Assuming the same rate on either line, the long line has a less surplus as profit than the short line would have. Diversion of freight to the long line, therefore, means that the short line loses a larger profit than the long line gains. Looked at from the point of view of community economy, it means that a greater amount of labor is used to secure a result which a smaller amount of labor would equally well secure. This greater amount of labor is less profitably employed than it might be, with resulting loss in the total of the community's wealth. As in the case of the protective tariff, labor is employed where it does not yield the maximum return to the community. But it is not always the shortest line in miles which is most economical. The shortest line may be one which has relatively steep grades and so requires more labor and fuel than a longer one. As between two lines of equal length, the choice should ordinarily fall upon the more level; while as between two lines of equal grades, the choice should ordinarily fall upon the shorter. For the same reasons, it is desirable, *other things equal*, that a place should have goods brought to it from the nearest source of production and that centers of production should send their goods to the nearest markets. This, of course, may be very undesirable when other things are not equal. It is better that goods be brought from a far cheap source than from a nearby dear one. But where production costs are equal, transportation costs should be the least possible.

There are, however, three possible situations, in any one of which it may be desirable that goods should be carried by a relatively long and roundabout route instead of by a shorter and more direct one, even though grades are equal. To illustrate the first case of this sort, suppose the cities A and D to be connected by the two railroad lines A D direct and A B C D (figure 1). Suppose, also, that the traffic between A and D is more than the direct line A D can properly care for. Then it may well be that the surplus traffic, beyond what the line A D can carry, should go by the indirect line A B C D, rather than that a new direct line should be built between A and D or that the line A D should increase its trackage. For the construction of a new line or more trackage involves an additional investment of capital. The capital invested in the roundabout line A B C D has been already sunk and can not be recovered. If the line A B C D yields any appreciable interest returns, it will probably be worth while to operate it, even though these returns are small. From the point of view of greatest national wealth, it is desirable that such a plant should be operated even though it would not be desirable, could the choice be made again, to construct the plant.

On the other hand, the construction of a new line or new tracks should not be undertaken unless rates can be charged which will pay about the average return on investment. The old roundabout line may be able to make profit enough to justify its continued operation for a great many years on rates lower than would justify the construction of a new line, even if a more direct one. The construction of such a new line, under these circumstances, would involve economic waste. Exactly the same conclusion may be reached if we assume that there is no direct line but only the roundabout line between A and D and that the roundabout line is able to carry the traffic between these two points. To the question whether a direct line ought, under such circumstances, to be constructed, it is not unlikely that a correct answer would be negative.

To illustrate the second case where carriage of goods by a more roundabout line may be desirable, suppose(see figure 1) that the possible paying traffic between A and D is greater than either the direct or the indirect line or both together can carry, so that a new line must be built; or suppose, to make the case still clearer, that there is a great deal of possible traffic between A and D but that no railroad connecting those points, has yet been built. The question is, whether a direct or an indirect line will be more profitable. Other things equal, the direct route would be preferred. But let us suppose that B and C are thriving towns, and that the traffic to and from each can be greatly developed, while on a direct line from A to D no other towns are located. On this supposition, a direct line, if constructed, must be able to earn enough on the through traffic between A and D to pay not only production-of-train-mileage expenses and terminal expenses, but also all of its general expenses (in which is here included expenses for maintenance of way as well as for administration) and profits. To do this and yield profits worth building for, it may have to charge fairly high rates. If a roundabout road is built, through B and C, it will have the local traffic between A and B, between B and C, and between C and D, as well as the through traffic between A and D. The local traffic will presumably help to pay general expenses and fixed charges (or profits). The local traffic may, in fact, pay enough to cover all the general expenses and almost enough to justify, even with no other sources of revenue in view, the construction of the road. If the road is built, rates can be made on the through traffic between A and D which yield very little more than is required to cover additional production-of-train-mileage costs and terminal costs; yet this little more will make the road a paying proposition. Even though freight from A to D or vice versa would have to be carried a longer distance on this road, it might be possible to carry it for lower rates than would pay all expenses, including general expenses and also a fair profit, on a more direct road. Yet without the through traffic between A and D, the line A B C D might not be able to make an average profit, or it might be able to make such a profit only by charging higher rates on its local short-distance business. If, then, an indirect line can carry goods more cheaply between A and D than a direct one, while making no less or a greater per cent profit, and while, perhaps, being able to make lower rates on its intermediate traffic than would otherwise be necessary, the former is the more economical route to use. If the direct route is chosen, the additional labor necessary to carry the longer distance traffic is less than if a direct road is constructed for the longer distance traffic alone. The same principle may apply if the more direct line can hope to secure some intermediate traffic, but considerably less than the other. A B C D and A D (see again figure 1) have both been built, but where the traffic between A and D is not more than can be taken care of by one of the roads alone. Not only is there no need for new construction, but already existing facilities are in excess of business. Unless more traffic is to be hoped for in the future, it will be the truest economy to abandon one of the roads. Otherwise the community must be burdened with two sets of general expenses and must in so far lose the economy that comes from complete utilization of a transportation plant. If other things are equal, the conclusion must be that the more roundabout road is the one to be abandoned. But, as in the second case, other things may be unequal. The roundabout road may be able to rely upon intermediate traffic which the more direct road can not hope to secure. In that case, the direct road A D can not afford long to operate unless the through traffic between A and D can bear rates high enough to cover most or all of the general expenses of the road. But the road A B C D has, by hypothesis, intermediate traffic to and from B and C; and this intermediate traffic may possibly be considerable—enough to pay all the general expenses of the road and something towards profits. It may be worth while to operate the road A B C D even without any of the through traffic between A and D or with rates on this through traffic barely above the additional production-of-train-mileage costs and terminal costs necessary to move it. The roundabout road may therefore be able to make lower rates, on through traffic between A and D, than the direct road could possibly afford to make, even though the former must carry the goods longer distances: and may yet be a more profitable investment for its owners than the latter could hope to be without charging higher rates. It may sometimes, therefore, be truer economy to abandon the direct than to abandon the roundabout line between two given points.

An illustration of a movement of traffic in part by relatively indirect routes, is furnished by the import and export trade of the United States. Goods are carried to Chicago and other middle western cities from Europe, and from the great grain-raising sections of the United States to Europe, by various transportation routes, and not always by the shortest. All the important ports and the railroads and steamship lines serving these different ports are in competition for this traffic. Wheat may be carried due south to New Orleans or southeast to Galveston, and thence to Europe, instead of going east through Baltimore, Boston, or New York. If a railroad from the American wheat and corn regions to Norfolk, Newport News, Galveston, or New Orleans, is useful for domestic commerce, and can add anything to its profits by engaging at lower rates in export and likewise import trade, it may be as well or better that such a railroad should engage in this trade, as that the New York Central and the Pennsylvania should enlarge their plants so as to do more of export and import business. The different ports and railroads concerned in this business have on many occasions engaged in contests to secure, each, a larger share of the trade. These contests can be satisfactorily settled only by such an agreed relation of rates as will secure to each road a quota of the business. The Interstate Commerce Commission itself, when endeavoring to settle such a contest, has been able to find no better basis than this.

The conclusions we have reached, should, it is believed, have some weight against any proposal to prohibit absolutely the competition of roundabout lines. We have seen that there are possible cases where a roundabout line may more profitably be built for the traffic between two points than a direct one. Yet, if the builders know in advance that they will not be allowed to compete against a direct one, should the latter be constructed, they will be less apt to build the roundabout line. Undoubtedly there are wastes of competition in the form of uneconomical carriage of goods over unduly long routes to destination, and some legal limitation on these wastes may be desirable. Yet on the other hand, as we have seen, it is not necessarily always the shorter line which is really the most economical for the purpose. Furthermore, the stimulus of competition between rival routes is not altogether without beneficial effects in hastening improvement, increasing efficiency, and keeping down average rates. The interstate commerce law of the United States penalizes the competition of roundabout lines by forbidding rates on intermediate traffic, e. g., from A to C in the figure, higher than rates on longer distance traffic over the same line in the same direction, the shorter haul being included in the longer; though the rigor of this section (4) of the law is lessened by the power of the Interstate Commerce Commission to set it aside in cases where this seems proper. An application of this law, or of its principle of limitation, which should require of the straightest or shortest line between two points strict conformity to the law as now worded and which should allow to more roundabout lines a percentage departure from this rule might satisfactorily meet the difficulty, a more roundabout line might be allowed to depart from the rule by a larger per cent than the one less roundabout, since otherwise reduction of rates on goods going over the long distance might require so great reductions on its intermediate traffic as to deprive it of revenue. Yet after a certain degree of roundaboutness had been reached, further increase of the allowed percentage departure from the rule might properly be refused, since an undue difference would mean either that the long distance traffic was being carried for less than the additional cost occasioned or that the intermediate traffic was being charged exorbitant rates.

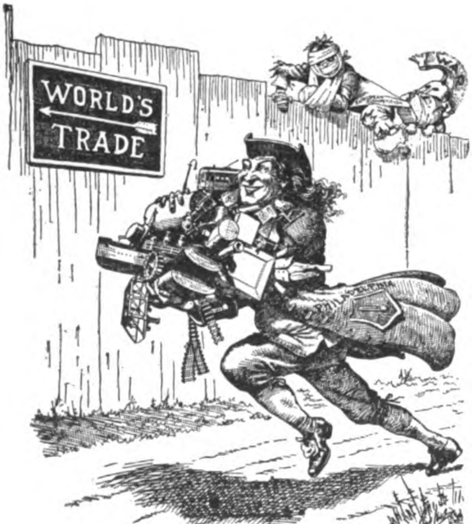
The solution here suggested would not do away with all uneconomical roundabout carrying of goods, but neither would it do away with the stimulus of competition. It may be better to have competition even with the economic waste inseparable from it, than not to have competition at all. No government rate regulation can ever stimulate progress as competition does, even if it can successfully prevent the enjoyment of monopoly profits. If the percentage of deviation from the long and short haul rule were properly arranged, no road would have any unfair advantage over any other, and competition, so far as it existed, would influence interemdiate as well as strictly competitive traffic. An administrative body, such as the Interstate Commerce Commission, may well, perhaps, have power to decide in each case, in view of all the circumstances, the extent of departure from the rule which ought to be allowed.

In the case of ocean transportation, there is no expense for construction or maintenance of way. It would therefore never be worth while to abandon a more direct route in order to save expense of upkeep. Unless winds or currents, etc., interfered, full cargoes shipped at one point and destined to another would ordinarily go direct, though two or more available routes may not infrequently be equally short or otherwise equally favored by nature. A somewhat roundabout route may at times be chosen for the sake of intermediate traffic, especially in cases where through traffic will not by itself provide full cargoes sufficiently often to justify as frequent service as shippers desire.

Financial

The General Outlook.

WHILE the financial situation must continue to be charged with uncertainty until the termination of the European conflict, improvements of an encouraging character have been noted along certain lines. The increase in orders received by the United States Steel Corporation and the optimistic speech of President Farrell at Pittsburgh, together with the rate decision in favor of the transcontinental railroads, which will allow them to compete with the Panama Canal, have all helped to improve the tone of the market, while a new low level for sterling exchange resulting in gold shipments from Canada, has also made a favorable impression. The condition of the business of buying and selling bonds is probably the most hopeful sign of the return of active and aggressive optimism.



HE HAS THE GOODS

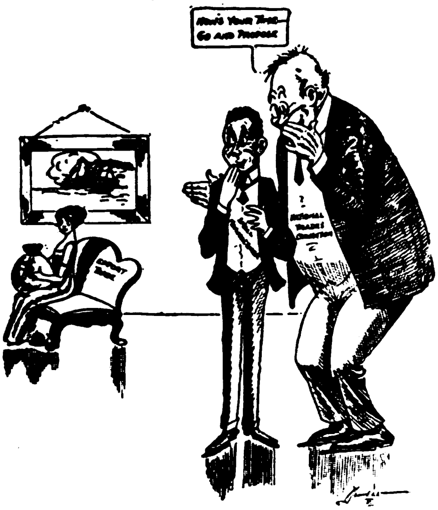
—From the *Philadelphia Ledger*.

The rapid distribution of large issues of municipal and railroad bonds in the immediate past has uncovered a demand for all classes of investment securities which has had no parallel for many months. In recognition of this condition many railroads have announced their intention of permanently financing not only their short-term maturities, but much needed improvements and betterments which had been indefinitely postponed, because money was unobtainable. The larger industrials are also taking advantage of the change in investment sentiment and their offerings also have been popular.

Recent developments would make it appear that large accumulations of money due to economy and possibly caution, are gradually being released and in the natural course of events this should lead to recovery in both the bond and stock market and to a gradual return to normal industrial conditions.

The break in the foreign exchange market during the second week in February with rates on all the large European centres shifting heavily in our favor, is another evidence, if one were needed, of the steadily growing strength of our international, commercial and financial position. Exchange in London, around 482½, is the lowest rate since 1907, when we were importing $100,000,000 in gold. The rate is considerably below that at which gold can be profitably imported, and the arrangement for $2,500,000 followed, to be sent from Ottawa, where part of the Bank of England reserve is stored. It is expected that a further amount up to $10,000,000 will come soon. .This movement is the result of the very large sales to Europe of food and

"Faint Heart Ne'er Won Fair Lady."



—From. the *St. Louis Globe Democrat.*

war material, which is proceeding. With exchange around present figures, a very large flow of gold would ensue. We do not, however, need gold, whereas abroad it is greatly needed to support credit and the large credit note issues. With a continuance of the war, foreign purchases from this side will undoubtedly continue and increase. Some method will probably be found so that the European stock will not be drained. The recent conference in Paris between the finance ministers of England, France and Russia, and the agreement between English and American bankers (which was the outcome of the conference initiated with American bankers by the visit of Sir George Paish) looking to arrangements in case either country were heavily called upon for gold, makes it seem probable that this movement from Ottawa is made with perfect understanding internationally.

For the first week in February excess of exports (estimated on the 85 per cent reported) shows $42,700,000. This is an advance over the first week in January, and if continued for February's remaining three weeks, will give the month around $171,000,000 excess; against January's $150,000,000. This is building towards the thousand million mark for the year, which will pay our short debts, help on our long ones and make us money lenders to the world.

The unreservedly optimistic address of President Farrell, of the Steel Corporation, recently was soundly based on the unfilled orders report which came out two days later, and on the undeniably growing activities of the Great Steel Foundation. Unfilled orders increased during the month of January nearly 412,000 tons—double what had been expected. This is the second month to show an increase, and the "Iron Age" says, to appreciate the present situation it is well to look back to November and December, when mill operations were only at about 35 per cent of capacity, while now they are around 60 per cent. It says that improvement is further shown by the blowing in of eleven furnaces since December, and now three more; fourteen in all recently placed on the active list; the great Gary works was put in operation recently after long idleness, and rail mills are speeded up to a sharper gait than for some time. Improvement work in the steel plants held up for some time has been started again, and the Corporation's export trade is now running ahead of normal.

Railway Revenues and Expenses for November.

THE Bureau of Railway Economics at Washington has issued its summary of revenues and expenses of steam roads in the United States for the month of November. In brief the situation shows that railway operating income for that month, reduced to a per mile of line basis, and compared with that for November, 1913, records a decrease of $42 or 14.7 per cent, while operating income per mile for November, 1913, was 21.2 per cent less than for November, 1912. Total operating revenues per mile for November decreased 13.3 per cent as compared with November, 1913, operating expenses per mile decreased 13.3 per cent, and net operating revenue per mile decreased 13.4 per cent.

The Bureau's summary covers railways operating approximately ninety per cent of all steam railway mileage in the United States. Their operating revenues for the month of November, 1914, amounted to $233,812,430. This amount includes revenues from freight and passenger traffic, from carrying mail and express, and from miscellaneous sources connected with rail and auxiliary operations. Compared with November, 1913, these operating revenues show a decrease of $32,836,569. Total operating revenues per mile averaged $1,023 in November, 1914, and $1,180 in November, 1913, a decrease of $157, or 13.3 per cent.

Operating expenses, which include the cost of maintaining track and equipment, operating trains, securing traffic, and of administration, amounted to $167,224,821. This was $23,435,399 less than for November, 1913. These operating expenses per mile of line averaged $732 in November, 1914, and $844 in November, 1913, a decrease of $112 per mile, or 13.3 per cent.

Net operating revenue, that is, total operating revenues of rail and auxiliary operations less operating expenses, amounted to $66,587,609, which was $9,401,170 less than for November, 1913. Net operating revenue per mile of line averaged $292 in November, 1914, and $336 in November, 1913, a decrease of $45 per mile, or 13.4 per cent.

Taxes for the month of November amounted to $11,143,626 or $49 per mile, a decrease of 6.5 per cent from November, 1913.

Operating income, which is net revenue from rail and auxiliary operations, less uncollectible revenues and taxes, averaged $242 per mile of line, and in November, 1913, $284, thus decreasing $42, or 14.7 per cent. Operating income for each mile of line for each day in November averaged $8.08 and in November, 1913, $9.47. Operating income is that proportion of their operating receipts which remains available to the railways for rentals, interest on bonds, appropriations for betterments, improvements, new construction and for dividends.

The railways of the Eastern District show a decrease in total operating revenues per mile of line as compared with November, 1913, of 11.9 per cent, those of the Southern District a decrease of 19.9 per cent and those of the Western District a decrease of 11.9 per cent.

Operating expenses per mile decreased 13.8 per cent in the East, decreased 15.2 per cent in the South, and decreased 11.3 per cent in the West. Net operating revenue per mile decreased 5.2 per cent in the East, decreased 31.0 per cent in the South and decreased 12.9 per cent in the West. Taxes per mile show a decrease of 7.6 per cent in the East, a decrease of 2.9 per cent in the South and a decrease of 6.1 per cent in the West. Operating income per mile decreased 4.7 per cent in the East, decreased 35.2 per cent in the South, and decreased 14.0 per cent in the West.

The operating ratio for November, that is, the per cent of total operating revenues absorbed in operating expenses, was 71.5 per cent, which is comparable with 71.3 per cent in November, 1913, and 66.4 per cent in November, 1912. The operating ratio in the Eastern District for November was 76.1 per cent, as compared with 77.8 per cent in 1913; was 74.5 per cent in the Southern District as compared with 70.4 per cent in 1913; was 65.9 per cent in the Western District, as compared with 65.5 per cent in 1913.

The Demand for a Sound Shipping Measure.

IN a recent published statement, J. S. Bache & Company, New York bankers, called attention to the fact that in opposing the Government Ship Purchase Bill, there is no attempt to dwarf the importance to this country of an adequate Merchant Marine. The lack of it is undoubtedly one of the most disturbing handicaps to our commerce in times of either peace or war. It is reported that all hope of passing some kind of a bill has not been abandoned by the Administration forces. The President has now a great opportunity to put before the country a sound bill, based on economic principles and practical experience. The plan practically unanimously approved by the Chamber of Commerce of New York is of this character. It was worked out by an expert business committee which spent four months investigating the subject from every angle. It received majority approbation from the recent convention of the United States Chamber of Commerce. It would have the support of a large number of the Republican members of Congress, who are opposed to the Government's entering the ship business. It could, in all probability, be put through promptly and would solve this most important problem in a sound and workable way. It would create an American Merchant Marine in the foreign trade based upon the principles of private ownership, but with the encouragement of Government financial aid and under the supervision of a Federal Shipping Board appointed to safeguard the interests of the public. The difference in cost of operation and construction of American vessels as compared with vessels of foreign ownership would be made up by the Government. There is no other way, under our present Navigation laws, of placing American-owned ships on an equality with vessels built abroad, when manned and maintained in accordance with European standards.

The enactment of such a measure under the leadership of the President would do much to recreate the confidence which has been shaken by the persistent advocacy of an unsound and dangerous measure. It would begin at once to restore the great shipping business to which the country is entitled and the existence of which was almost completely wiped out fifty years ago.

Pennsylvania Railroad to Increase Indebtedness at Next Annual Meeting.

THE Directors of the Pennsylvania Railroad at a meeting held on February 10th, decided to request the stockholders for authority to increase the indebtedness of the Company at the next annual meeting to the extent of $40,000,000. Authority already exists, under action of the stockholders taken in March, 1909, to increase the indebtedness $80,000,000, so that the total authorization, including the $40,000,000 will then be $120,000,000. The $49,000,000 of Consolidated Mortgage Bonds recently sold are a part of this authorization. There will therefore be $71,000,000 of authorized increase remaining to meet the capital requirements of the Company, and which may be issued from time to time in the future in such form of security as the Board of Directors may decide to be most advantageous.

Operation

Fighting Fires on Railway Property.

HIGH efficiency in the methods and apparatus used in fighting fires on the Pennsylvania Railroad System is shown by the annual report of the Insurance Department, which has just been compiled.

Four hundred and twenty-seven fires—more than three-quarters of all that occurred on the property of the System last year—were extinguished by company employes before receiving the aid of public fire departments. Promptness in checking these fires kept the average loss on each down to $43, although the property directly endangered was worth $9,516,434. The actual damage sustained in fires extinguished by employes was only $18,468, or less than one-fifth of one per cent of the value of the property threatened.

Organized fire brigades among the employes last year checked 34 fires and saved $1,524,075 worth of property, at a loss of $706. Other employes, by the use of chemical extinguishers, put out 71 fires, saving property to the value of $3,713,228, with a loss of only $2,684; and by the use of Company's fire hose protected property with a value of $1,779,022, through extinguishing 43 fires with a loss of $2,262.

The total fire loss on the Pennsylvania System during the year 1914, including fires where the assistance of City Fire Departments was received, was $658,483, while the value of the entire property was nearly $400,000,000, the fire loss being only 16 cents per each $100 of property value at risk.

Many of the fires resulting in this loss were from causes over which the Railroad Company had no control. Forty-three fires originated on adjacent property. Incendiaries started twelve fires; boys were responsible for two; tramps for fifteen; lightning for seven and carelessness with matches and tobacco for sixteen.

Railway Courtesy Good Advertising.

A CIRCULAR on the subject of courtesy was recently issued by Charles Ware, General Manager, U. P. R. R. Co., and sent to all employes coming in contact with the public:

"Uniform courtesy on the part of employes who come in contact with patrons of a railroad, is not only a valuable asset of a company, but is one of the most effective means of advertising it. From the standpoint of a courteous employe there should be no such thing as a foolish question; people make inquiries because they want information or to be reassured on matters that may be doubtful. All questions should be answered willingly, courteously and specifically; no matter what is asked or how often, reply should be made fully and cheerfully. Especial attention should be given by trainmen to the aged, women and children traveling unattended, and those not accustomed to traveling. The general public forms its opinion of the Company by the treatment it receives from employes; a courteous employe makes friends for himself and the Company. Courtesy to patrons is essential; they appreciate and remember it. Be courteous at all times and make friends for the railroad, never permitting a patron to leave dissatisfied."

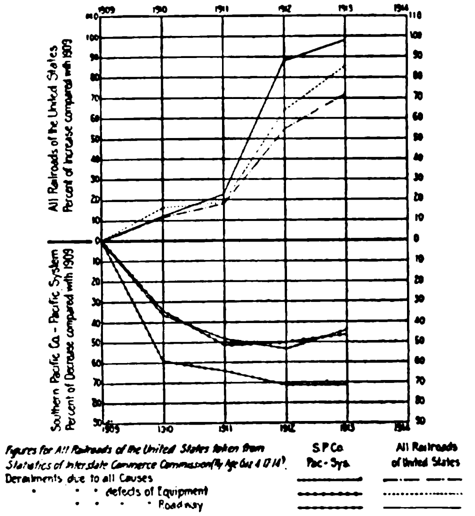
A New Seating Arrangement for Parlor Cars.

A NEW seating arrangement for parlor cars, which is expected to increase the comfort and pleasure of travel, is to be given a trial by the Pennsylvania Railroad on the Delaware River bridge trains between Broad Street Station, Philadelphia, and Atlantic City, N. J. Movable arm chairs will replace the fixed swivel chairs hitherto used.

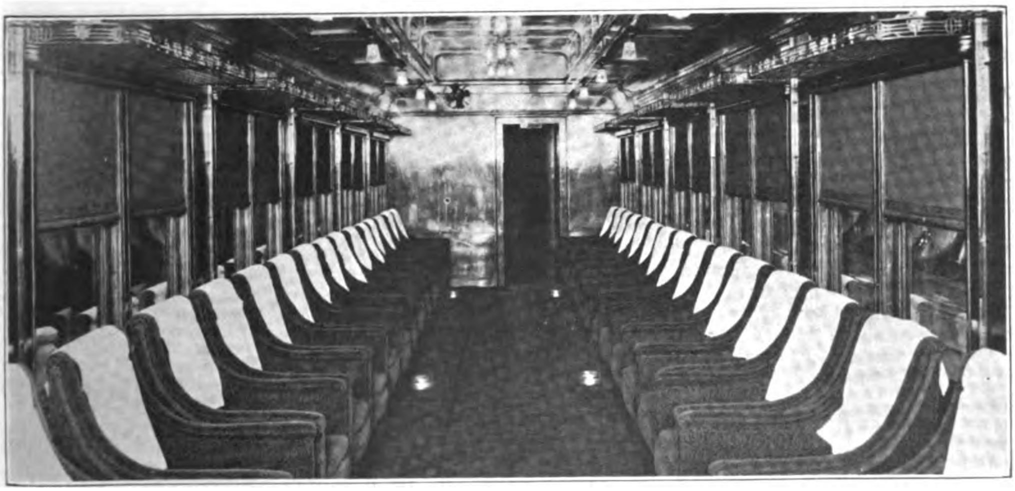
Passengers will be nearly as free to choose their locations as though they were in a room instead of a car. Conversation will be far more convenient than is possible with the fixed chairs. Two parlor cars, equipped with the new type chairs, will be placed in operation on the bridge trains. If the movable chairs are appreciated their use may be extended.

Decrease in Derailments on the Southern Pacific.

AS compared with the balance of the country, the Southern Pacific has recently made a remarkable record with reference to derailments. Statistics compiled by experts show that the percentage of derailments on the railroads of the United States has increased since 1909. The Southern Pacific Company, however, while constantly adding to its train mileage shows



Comparative Diagram Showing Decrease in Derailments on Southern Pacific.



Pennsylvania All-steel Parlor Car Showing New Experimental Seating Arrangement.

a correspondingly great decrease in these accidents. The accompanying diagram graphically compares the derailments on the Southern Pacific Company, Pacific System, with those on all railroads of the United States by fiscal years since 1909. The record of the Southern Pacific is remarkable in view of the general tendencies displayed. The Company believes that this wonderful record is entirely due to their men on account of their loyalty to the safety first principles as outlined by the officers and on account of their conscientious attention to their work.

Lackawanna Road to Use Moving Pictures in Safety Work.

THE Coal Mining Department of the Delaware, Lackawanna and Western Railroad is having prepared by the Edison Company a series of moving picture "plays" illustrating possible accidents in the mines, with the obvious corollary of how to avoid them. Some of the moving pictures of anthracite mining prepared by the United States Bureau of Mines may be used in conjunction with the Lackawanna films.

No effort is being spared in the Lackawanna's elaborate campaign for safety in the mines, and by stretching a wire to the miner's house these plays can be given with a small projecting machine right in his home. Where it is impossible to stretch a wire, storage batteries may be used for their home entertainments. The moral effect in promoting caution is the company's reward for the trouble and expense.

Prizes will be offered for the most vivid and instructive plays and these will be turned over to the keg fund of the locality which wins them. At many of the Lackawanna collieries the empty powder kegs which are returned in good condition are stored by the company, which credits eight cents to the fund for each keg, the exact amount received from the powder company for their return. These funds are devoted to paying sickness and death benefits and funeral expenses for the mine workers. They average from $1700 to $2000 a year.

Safety First in the California Public Schools.

EDWARD HYATT, Superintendent of Public Instruction in California, has issued a circular to the teachers of the State, suggesting to them the idea of instilling the safety first idea into the minds of the children as a means of preserving the life and strength of the state.

In the circular, Mr. Hyatt points out the appalling fact that 25,000 children have been killed because of trespassing on railroad property within the last twenty-five years.

"All would have been saved had they kept off the tracks," he says. "Our carelessness and heedlessness in this regard are inconceivable. The greatest railroads of the country spend millions of dollars annually to prevent accidents. Is it not a public duty to do our small part, too? It is well for the schools to join in the movement, for it is by such steps as this, all together, that the human race advances along the corridors of time."

The Proper Ventilation and Cleaning of Passenger Cars.

OFF-HAND, the problem of causing sufficient air to pass through a passenger coach to meet the hygienic needs of sixty passengers may seem extremely simple. But no problem confronting car builders and designers is more baffling.

By the system of ventilation which the Pennsylvania Railroad has developed, and which is now in use in all of its steel passenger cars and most of its wooden cars in service, each passenger in a full car is supplied with 1000 cubic feet of fresh air per hour; and this with all windows and doors closed.

The system consists of four hoods, or funnels, one at each corner of the car, which scoop in air as the train is running and force it down to a duct under the floor, where it is heated over steam pipes and then passes out into the car through openings under the seats. The vitiated air escapes through ventilators in the roof.

A large number of road tests were made to decide whether this system of heating and ventilation thoroughly performed the functions for which it was designed. In these tests cars were loaded with shopmen. In one test the car contained fifty-two persons, including those who took samples of air. As they were all full-grown workingmen, the amount of carbonic acid gas given off per person was assumed to be .72 of a cubic foot per hour, this being the average for a robust adult.

Runs were made from Altoona to Johnstown and return, about forty miles each way. Air samples for analyses were taken by pumping air into rubber bags by means of hand-bellows, the operator moving from one end of the car to the other and back again, taking air from about the level of the passengers' heads. The analyses were made immediately after the return to Altoona, and always the same day. All doors and windows were closed during trips, and were not opened at end of trips until proper samples of air had been secured.

Repeated tests, with a constant changing of the ventilating apparatus, made it possible finally to arrive at that system which produced the most fresh air per passenger. That system is now the standard on the Pennsylvania Railroad.

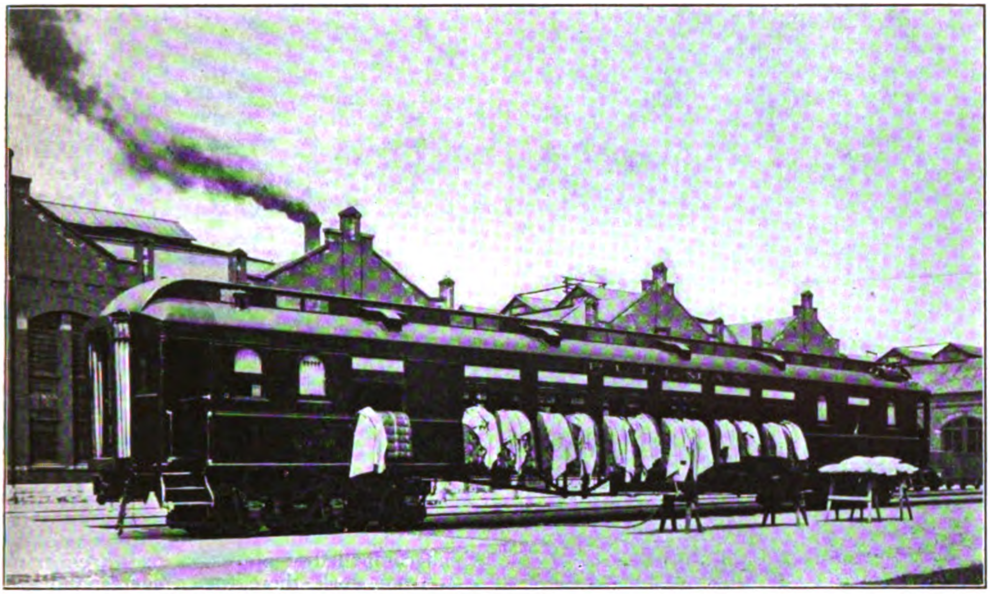
It costs approximately $265 to install the Pennsylvania's ventilating system in a passenger car. Thus, to equip the 3000-odd steel passenger cars owned by this System has alone cast $795,000.

* * * *

How Cars Are Cleaned.

Cleaning a passenger car is not very different from cleaning a sitting room in a home. It can be done well and it can be done in a slipshod manner. The Pennsylvania Railroad chooses to be a tidy housekeeper, and in no part of its housekeeping work is more brain and muscle employed than in cleaning the cars used in passenger trains.

In the Pennsylvania yards at Sunnyside, Long Island, and in the Pennsylvania Station, New York, these are but two of the cleaning points on the Railroad—22,000 cars are cleaned in a month, more than 700 a day. Some of these are



Method of Airing Bedding on Pennsylvania Railroad Pullman Car, Showing the way Blankets, Pillows and Mattresses are Given a Good Bath of Sunshine.

dining cars, some Pullman cars and some steel passenger coaches.

The passenger as he boards the train which is shining and spotless inside and out, does not stop to think that a few hours before these same cars were returning from a run, travel-stained and dusty; that the seats and carpets which look so fresh and new have lately borne the traces left by other travelers. If he could stay on board after the passengers are discharged at Pennsylvania Station in New Yor. or at Broad Street Station in Philadelphia, or at Pennsylvania Station in Pittsburgh, or any of the other large stations, and go into the yards where the passenger trains are cleaned, he would probably meet a surprise—anyway, he'd be interested.

First, the carpets are removed and cleaned. Every carpet must be thoroughly cleaned once

Showing Method of Cleaning Mattresses and Blankets by Means of Vacuum Process, Ridding them Completely of all Accumulations of Dust.

every four days. They are placed on a platform of grating constructed for the purpose, at a place distant from any cars. Every particle of dust is removed by a blowing process—the blast of air has 110 pounds of pressure behind it. Not a particle of dirt can escape the gust of air which searches out every fibre and makes it clean.

And in the meantime, while one gang of men is cleaning the carpets, another gang, called "Blowers," turn a purifying, all-pervading stream of air into every corner of the car. The seats are gone over and the dust swirling out of the windows gives every impression that the car is afire.

After every particle of dust has been blown away, men with mops and linseed oil soap start on the floors. The floors of the steel cars are of a mixture of cement and ground cork and are much easier to clean than wood. After the floors have been thoroughly scrubbed, every inch of the steel interior is rubbed down with cloths. The carpets are then laid, there is another dusting and the car is ready for a trip.

Latest Safety Statistics of the Chicago and North Western Railway.

THE following statement shows the reduction in number of accidents on the Chicago & North Western Railway, for four and one-half years on same basis as year ending June 30, 1910, before the Safety First Committees were organized.

173 fewer employes killed, a decrease of 35.3 per cent.
10,671 fewer employes injured, a decrease of 27.3 per cent.
961 fewer passengers injured, a decrease of 22.8 per cent.
210 fewer outsiders killed, a decrease of 19.4 per cent.
228 fewer outsiders injured, a decrease of 8.2 per cent.

Mileage June 30, 1910	7953
Mileage December 31, 1914	8423

The North Western Railway operates in nine states, with a mileage of 8423 miles; the safety first work was commenced in May, 1910, and there are now over nine hundred men serving on the Division, Terminal, Shop, Local and Central Safety Committees. The best evidence of the effectiveness of the work done by the men serving on these Safety Committees is shown in the following statement of reduction in accidents for the six months ending December 31, 1914, as compared with the same six months in 1909, before the Safety First Organization was put into operation.

	1909	1914
Employes killed	61	24
Employes injured	4546	3025

In the years 1912, 1913 and 1914, the following recommendations were made by the various Safety First Committees:

	Adopted	Rejected
Division Committees	9582	430
Shop Committees	3084	111
Terminal Committees	1456	32
Local Committees	414	26
Central Safety Committee	257	29
TOTAL	14,793	628

Because North Western men have become impressed with the importance of complying with the Golden Rule of railroading: "Better cause a delay than cause an accident"; that it is better to be careful than to be crippled; and that Safety First stands for:

Conservation of human life; Elimination of Chance-takers, who are the makers of cripples, widows and orphans; For safety of men as well as things; For greater safety and regularity. In four and one-half years they have accomplished this result—381 fewer deaths; 11,860 fewer injuries.

Safety Results on the Lehigh Valley.

ILLUMINATING results of the actual working of a doctrine of safety first were announced to-day by the Lehigh Valley Railroad. Comparing the year from November 1, 1913, to November 1, 1914, with the preceding twelve months, there was an actual reduction of more than 600 in the number of employes injured to the slightest degree in pursuit of their duties. Figuring on the accidents which compelled employes to lose three or more days from work, there was a corresponding decrease for the year just closed compared with the preceding one.

The number of employes killed while working was reduced during the same time from 51 for the year ending November 1, 1913, to 43 for the more recent twelve months.

The Lehigh Valley was one of the first roads to take up the doctrine of safety first in concrete fashion. It was made something more than a mere slogan. Its value was driven home to every employe of the railroad, and the men were organized by divisions to increase the interest and effectiveness of the campaign. Prizes were offered for the best suggestions calculated to furnish greater safeguards to employes and the traveling public, and a banner has been annually awarded to the division showing the smallest percentage of injuries to employes based on the number employed there.

The effects of the campaign have revealed themselves not only on the men actually in the employ of the company, but are beginning to show a reduction in the number of trespassers injured. The trespasser, the person who uses the railroad tracks for a thoroughfare despite the knowledge of its danger and the warnings of the company, is the bugbear of all railroads. Anything tending to reduce the accidents to this class, accidents wholly unpreventable by the railroads, will be eagerly welcomed by them. In the year ending November 1, 1913, 75 persons were killed and 64 injured. In the last year the number of persons killed was reduced to 73 and the injured to 55. Educating the public against trespassing on railroad property is a much more difficult proposition than educating employes, but the encouraging results shown have led the Lehigh Valley management to believe a better showing will be possible in each succeeding year.

Second Exposition of Safety and Sanitation.

DURING December, the second exposition of Safety and Sanitation was held at New York under the auspices of the American Museum of Safety. Aside from the various exhibits, public officials, leading industrialists and experts in matters relating to accident prevention and health promotion, discussed the topics presented on the program. In addition to these talks there were daily motion pictures presenting the methods employed for promoting safety and health.

In the opinion of competent and discriminating critics, this exposition showed a marked advance over that of last year and won many friends for the Museum. Several railroads were numbered among the exhibitors, and all of them were awarded grand prizes on account of the excellence of their exhibits.

The New York Central Lines showed models of standardized safeguards for machine and carpenter shops; proper and improper tools; goggle exhibit; photographs illustrating safe and unsafe conditions and practices in railway operations; statistical charts showing causes and decrease of accidents on railroads; transparencies of scenic route; working model of engine of Empire State express run by compressed air; motion picture story, "Steve Hill's Awakening" illustrating common causes of accidents and methods of preventing them.

The Pullman Company exhibited a section of a Pullman sleeping car with upper and lower berths, showing sanitary arrangements and methods of cleaning cars by means of a portable vacuum cleaner; photographs illustrating safety and welfare work at the manufacturing plant, at Pullman, Ill.; first aid equipment; plant bulletin board with suggestion box attached.

QUEEN & CRESCENT R
SAFETY
FIRST

THREE RAILROAD BOOTHS AT THE RECENT EXPOSITION OF SAFETY AND SANITATION HELD IN NEW YORK UNDER THE AUSPICES OF THE AMERICAN MUSEUM OF SAFETY.

THE ATTRACTIVE BOOTH OF THE SOUTHERN PACIFIC COMPANY.

The Queen and Crescent Route had a photographic exhibit of safety devices in machine and carpenter shops; track section equipped with automatic electric drop signals; cattle guards, guards for frogs, switches and overhead crossings.

The Southern Pacific Company exhibited a track section with full size automatic block signal; statistical charge, photographs and lantern slides illustrating the Company's work for promoting the safety and health of employes and of the traveling public.

The Union Pacific Railroad Company also showed a track section with full size automatic block signal; charts and photographs illustrating safety devices and methods in use throughout its shops, yards and tracks.

How great has been the spread of safety work in the transportation field. is evidenced by a list published by the American Museum of Safety which is composed of the names and addresses of those companies and societies whose safety work is known to the Museum. This list contains 185 names, 99 of which are represented by steam and electric railways.

New York Central is Awarded Harriman Memorial Gold Medal.

THE New York Central Railroad has been awarded the E. H. Harriman gold medal, which goes to the American steam railway making the best record in accident prevention and industrial hygiene affecting the public and its own personnel during the year ending June 30, 1914.

The record of the New York Central for the year was considered remarkable in many respects. The progressive steps taken in the installation of block signals, improved roadbed, steel equipment and modern safety devices were taken into consideration, as well as the actual record of accidents. There has not been a passenger killed in a train accident on the road in four years, during which time the number of passengers actually carried on its trains equals approximately twice the entire population of the United States. Nearly three million freight and passenger trains were operated day and night in all kinds of weather. During the year ended June 30, 1914, as compared with the previous fiscal year there were 102 fewer persons killed and 1068 fewer persons injured as a result of the safety work on the road. It is reported that the road's record for the year ending December 31st is even better than the record for the fiscal year, the decrease in death cases being 32 per cent and injury cases 33 per cent over the previous calendar year. One of the interesting features of the road's record is in the efficiency of its employes as indicated by surprise tests wherein the employes without previous warnings were tested as to their observance of signals set against them, as to flagging, blowing whistles at grade crossings, speed restrictions, etc. Out of 323,292 such tests made in the year in only 389 cases were the employes deficient, the percentage of efficiency being 99.68 percentum.

The work conducted by the road through its Safety Bureau, in educating its employes and the public in general to avoid unsafe practice, was one of the features wherein the road excelled. Substantial reductions were made in the number of accidents to trespassers and to persons on grade crossings, as well as to passengers and employes.

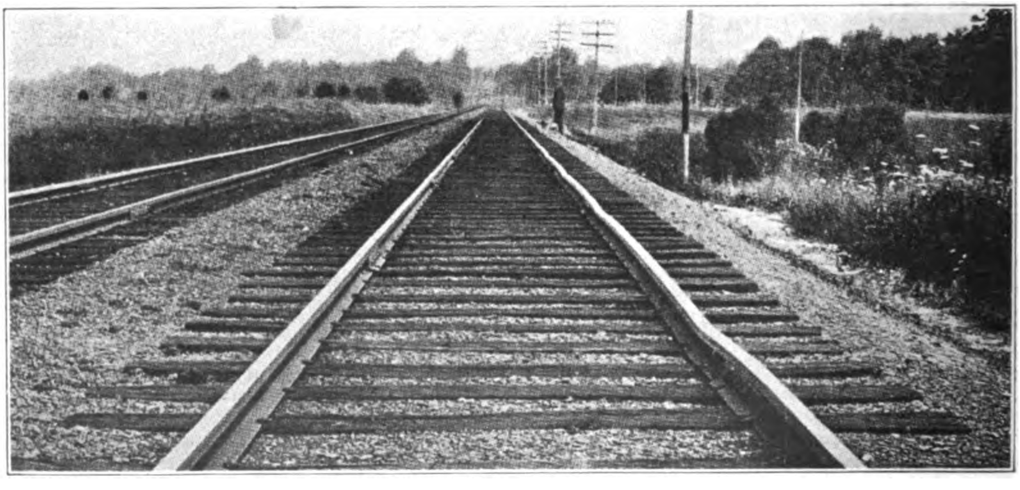
The record as to mechanical improvements on the road showed that the entire main line from New York to Chicago is now equipped with automatic block signals and one hundred pound steel rail laid on a heavy bed of rock ballast. Much work has also been accomplished in the way of eliminating dangerous curves and grade crossings, and in the substitution of steel for wooden cars.

In the matter of hygiene and general sanitary measures, the road has taken advanced steps for the conservation of the health of both passengers and employes and has adopted the most improved standards for the proper ventilation, cleaning and disinfecting of its stations, cars and shops.

Mechanical

The Effect of Over-Counterbalance.

AT a recent meeting of the Railway Club of Pittsburgh, Mr. G. M. Eaton, gave an interesting illustration of the rail damage caused by the action of locomotive over-counterbalance. It appears that some years ago the Baldwin Locomotive Works was conducting a trial run of a locomotive on a customer's tracks. The greater part of the track consisted of 80-pound rails, but a certain portion had been recently laid with 100-pound rails. During the test, a very high speed was obtained on the 100-pound section and the operation was apparently satisfactory. As soon, however, as the locomotive ran on the 80-pound rail a very decided disturbance was caused and the counterbalance produced a blow heavy enough to decidedly bend the rail toward the center of the tracks as indicated by the accompanying illustration.



IRREGULARITY IN RAIL SURFACE CAUSED BY OVER-COUNTERBALANCE OF HEAVY LOCOMOTIVE.

A Remarkable Bridge.

A RECENT issue of the "Engineering News" contains an interesting account of a new steel arch bridge or viaduct over the Bietsch Valley, Switzerland.

This viaduct is distinctly remarkable for the fact that it is built on a short-radius curve of only 300 meters and also on a gradient of one in 45. The situation is over a craggy ravine, between two tunnels piercing the spurs on either bank, about 80 meters, or 266 feet, above the bed of the ravine, and at an altitude of 1,000 meters above sea-level.

The arch has a span of 95 meters, or 311.8 feet, between centers of hinges, and a rise from this chord of 23,795 meters. Supported partly upon this arch and partly by the masonry approach arches are two trussed girder spans, each 35.456 meters long between their hinge centers.

The three structural elements in the bridge are all rectilinear, while the bridge floor, with its own system of bracing, alone is curved and continuous between the pier abutments. The superelevation of the outer rail of the track is 15 centimeters.

The test load, shown in the accompanying photograph, with three electric tractors, each weighing 105 tons, was made at a speed of 75 kilometers per hour, and the elastic vertical depression at the crown of the arched ribs during the passage was 10 millimeters on the outside girder and 5 millimeters on the inside girder. The single track thus far built is carried along the outer, or longer, radius of the bridge curve, where the stress of a heavy train, descending at 75 kilometers per hour, under the maximum retarding effect of the brakes when coasting, would naturally be the greatest. The simultaneous lateral movement from the center line was only 8 millimeters.

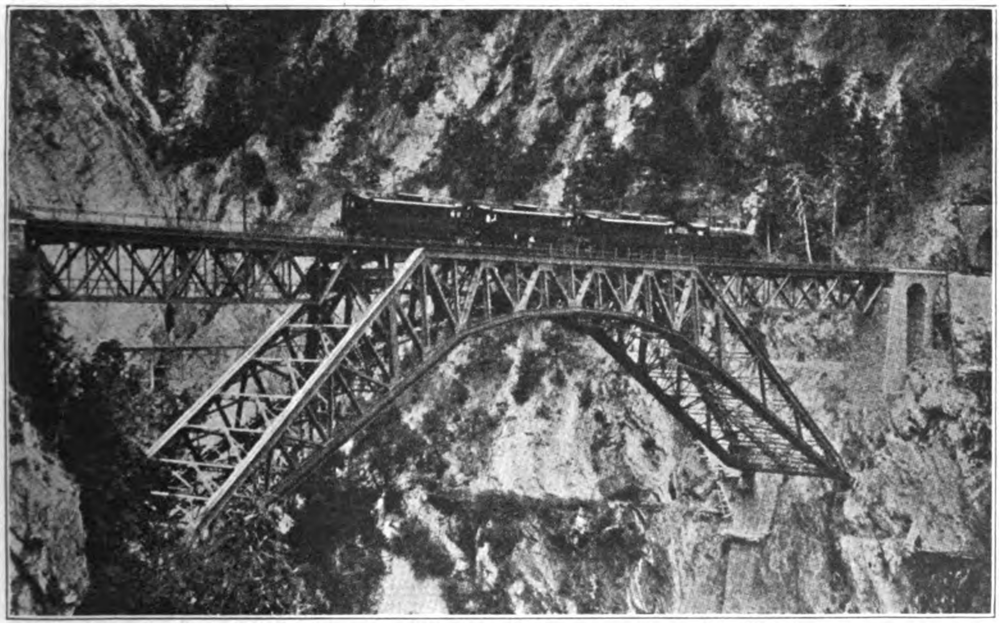
The preparation of the natural rock abutments necessitated some amount of masonry reinforcement, or, in some cases, the construction of small piers extending down a certain distance along the nearly vertical sides of the cliffs—work at first effected from overhead by means of transporters for men and materials. The cellular cast iron abutment pedestals, measuring 59 by 63 inches, are partly retained by projecting studs on the dressed stone abutments, and were lowered into position by light lattice derricks of 5 to 6 tons lifting capacity. To each pedestal is secured a massive cast steel chair, with convex-pivoted bearing, which could be adjusted in four horizontal directions, as also vertically and angularly for alignment by means of double sets of mild-steel wedges about 63 inches long. When this work had been completed the derricks were used to lower into position a very massive cast iron foot to receive the Y-end of the arched ribs. A deep recess in the underside of this foot contains the forged steel concave bearing which constitutes the upper half of the spherical hinge supporting the weight of the arch.

The weight of the central span with floor girders for one track amounts in round figures to 800 tons, the metal abutment work—pedestals, etc.—weighs about 30 tons, and the two straight approach spans, for single track, on the outside curve, weigh 170 tons.

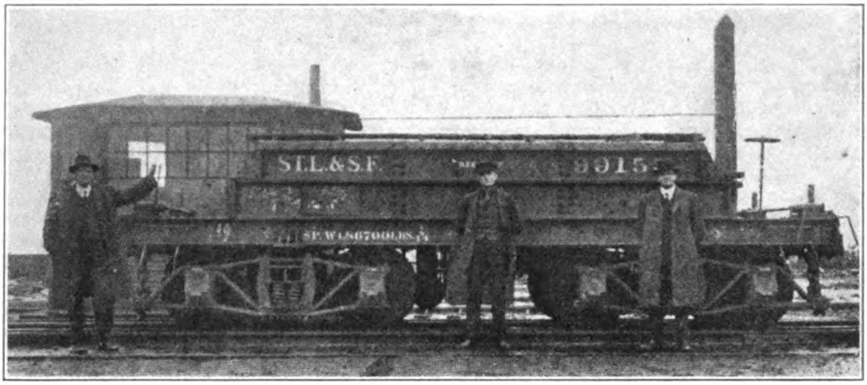
Field riveting was effected by compressed air riveters and pneumatic hammers. The metallic falseworks weighed 330 tons, and 200 cubic meters of timber were used for the scaffoldings and centerings.

Frisco Scale Test Car.

THE accompanying illustration of a car used by the Frisco Lines for testing track scales is, we believe, the only car of its kind now in use. It is built entirely of steel and weighs



VIADUCT RECENTLY CONSTRUCTED OVER THE BIETSCH VALLEY, SWITZERLAND.



New Scale Test Car Recently Put in Service by the Frisco Lines.

86,700 pounds. It has a 15-foot wheel base, but when used for testing scales the two outside wheels are raised off the rails by jacks, which are attached to each end of the car, making a wheel base of seven feet. This throws the entire weight on the two inside wheels, which permits the testing of each section of the scale separately.

A New Method in Railroad Tunneling.

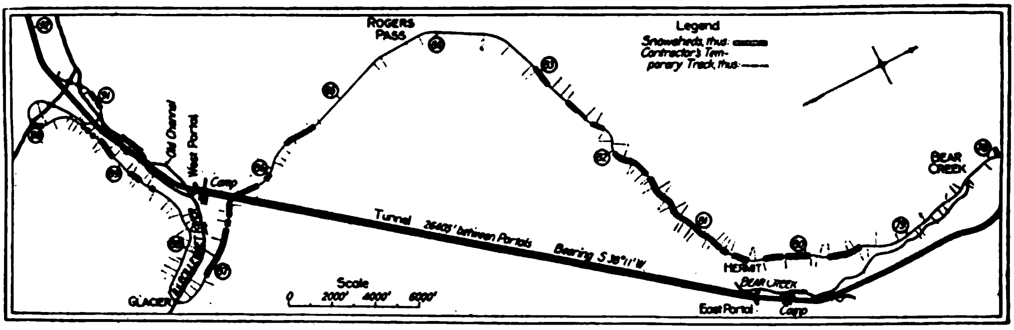
IN the construction of the Rogers Pass Tunnel through the Selkirk Mountains on the Canadian Pacific Railway, novel methods are being employed which are new to this character of railway work.

In an account of progress thus far made the "Engineering Record" states that, as the extremely high operating and maintenance cost on the track to be eliminated made it worth while, once the tunnel was decided upon, to spare no expense in rushing it to completion, a contract with a bonus and penalty clause was prepared, based on a 3½-year construction period. The contractors, in turn, met the extreme haste requirements by planning to drive the tunnel from a number of headings simultaneously, using a pioneer or entirely separate tunnel for removing the muck and ventilating the inner headings. Thus several miles of 7x8-foot pioneer tunnel in solid rock are being driven at the contractor's expense and for the sole purpose of expediting progress on the main bore.

From the west portal, which is about a mile from Glacier, B. C., the tunnel passes straight through Mt. Macdonald, elevation 9,860 feet, to a point 26,405 feet distant on the bank of Bear Creek. The saving in elevation is 550 feet and the route is shortened by 4.4 miles; at the same time four miles of snowsheds are eliminated, the annual maintenance of which is about $25,000 per mile. To connect up with the old route 1½ miles of new track had to be located on the west and 11 miles on the east, so that when the tunnel is opened for service 22 miles of old main line will be abandoned.

The pioneer bore is used for hauling out muck in trains of ½-yard dump cars drawn by mules, and also accommodates ventilating and compressed-air pipes and telephone lines. Thus the steam shovel advancing from the main portal is not delayed by much coming over the face, nor hindered in its movements by large or small pipes. Also, the drilling progresses in the center heading at the same time muck is being removed by the shovel, and the shovel works continuously, except that it is withdrawn for a few minutes while shots are fired and the fumes cleared out by a current of air forced toward the portal from the center heading.

On October 1st, the Pioneer Bore on the West had been advanced 16,089 feet and was progressed at an average rate of 650 feet per month when excessive water was not encountered. On the east end, the full tunnel section was completed and timbered for 450 feet, while the center heading was in 3,100 feet and the Pioneer Bore 5,312 feet. The best progress made thus far was in the month of July when the Pioneer heading was advanced 720 feet on the east end.



MAP OF OLD AND NEW LINES AT ROGERS PASS, SHOWING SNOWSHEDS AND CURVATURE ELIMINATED BY THE TUNNEL

Electrical

Merchandise Carrying on Suburban Lines.

IN its electric railway section, published on January 30th, the "Financial and Commercial Chronicle," calls attention to the vast influence of electric transit in building up suburban as well as interurban and urban traffic. To quote from the article—

Without this apparently exhaustless power, the radius of car movement in such traffic would have remained insignificant, and this great servitor has probably done more than all else in redistributing the population of cities, notwithstanding cities continue to grow. Nothing new can be said of electric-carrying of passengers, but its carrying of merchandise still has suggestive possibilities.

The rise in the cost of living is the result of many causes; among them (some contend) the decline in the value of gold; the marked failure of production of foodstuffs to keep pace with consumption; the drift of population cityward, a movement which may be both a cause and an effect; the progressive advance in wages, that inevitably acts on the "spiral staircase" line of increasing a pressure which it is declared necessary for relieving; and spots and modes of friction between producer and consumer, this last being at least a serious cause. The friction hindrance is partly defective distribution through markets near the consumer, and partly transportation cost and transportation waste.

As one example of the latter, consider the indispensable apple. It is not uncommon to find, in the season, the ground so covered with apples under overladen trees that one must step carefully to avoid them, and this in places within 75 miles of New York and only a few miles from both the rail and the Hudson River; yet the grower will declare (and fit his conduct to his declaration) that if he sends his apples hither he may not get back the cost of barrelling and any profit is unexpected; so the fruit goes to the cidermill or to animals that could be fed less choicely, and the city consumer pays the same old prices at retail. The newspapers say that last season's apple crop was the largest ever known in this country, but the city consumer does not find advantage from that abundance reaching himself. For an example from a quite different fruit, we hear directly of thousands of barrels of prime grape fruit ungathered on the trees in Porto Rico, because something estops the grower from any profit; but the people of this great city want that fruit.

Where are the frictions, and from what causes? It seems certain that such contra-natural hindrances are removable (or ought to be) and the first step is to locate and diagnose them. Is not this work perhaps one for the electric railroads to take up? The suggestion has been at some time made that the Interborough lines take up merchandise-carrying in some of the "off" hours, but the difficulties of getting even light-weight goods in and out of the subway stations seem too great, and the elevated lines could be no better in this respect; furthermore, there are no hours in which passenger traffic within the city would be slight enough to make much freedom for such a change. The surface lines which are radial to cities and act as nerves and arteries for it are not so fully debarred from light carrying. Movement of cars of foodstuffs in the "off" hours seems to present no insurmountable troubles. The service could be increased and quickened by a co-operative delivery of the articles at central spots instead of having each grower take the straightest line to the track; further, it would not be impossible to extend the "feeder" service by constructing short bits of the simplest track, over which horses could do the hauling, where electric or more substantial track would not be profitable.

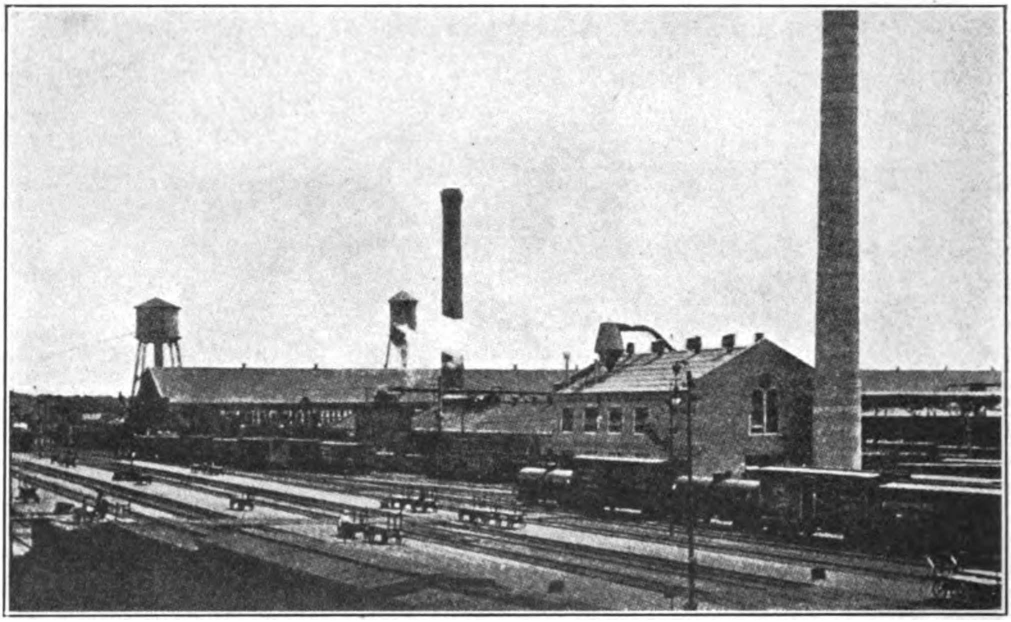
Now and then the newspapers advance the apparently bold proposition that even a great city could almost feed itself, as to vegetables at least, from the unused pieces of land within it, if the inhabitants had the will to bring this about. This means more studied and more intensive culture, an improvement which contains great possibilities and is really making progress; meanwhile, without laying great stress on the city's feeding itself, it is certain that the suburban part of the problem has much yet to be done.

The foregoing is not offered as foregone conclusions, but only as suggestive. It seems to be safe to say that we are hardly beyond the first letter yet in the alphabet of possibilities of electricity as a servant; are we yet as far as half down the alphabet of possible services of the electric railway?

Terminal Improvements

The Great Western Shops at Oelwein, Iowa.

THE accompanying illustration gives an excellent idea of the Chicago Great Western's shops which are located at Oelwein, Iowa, and which are stated to be the largest and most up-to-date in equipment of any of the West Mississippi Valley. The main shop is nearly one-fifth of a mile in length and all other buildings are of sufficient size and amply equipped to handle the immense amount of business incident to the repair of motive power and rolling stock, both passenger and freight, brought in from the four division and branch lines. Nothing but the latest machinery and devices are employed, driven by electricity and compressed air. The activities of the entire plant have been systematized in a highly efficient manner and adequate terminal facilities permit an enormous amount of business to be transacted without confusion or congestion. This is evidenced by the order maintained in the shops and yards, as indicated by the accompanying illustration.



THE GREAT WESTERN SHOPS AT OELWEIN, IA., SHOWING THE ORDERLINESS OF THE YARD AS THE RESULT OF SYSTEMATIC METHODS.

Southern Railway Puts in Operation New Classification Yard at Birmingham, Ala.

FINLEY YARD, the new gravity classification yard and engine terminal of Southern Railway, just north of Birmingham, containing thirty miles of track with a capacity of 2,000 cars has just been placed in service.

The engine handling plant consists of a 25-stall roundhouse of reinforced concrete with a ninety-foot electrically operated turntable, a modern reinforced concrete coaling station with an overhead storage capacity of 1,000 tons, water, sand, and cinder handling facilities of the most modern type.

The entire plant will be electrically lighted and a complete system of fire protection has been provided in connection with the water supply.

Finley Yard, even with a large increase in traffic, will provide adequate facilities at Birmingham for at least five years, and provision has been made whereby the capacity of the yard can be approximately doubled; which based on increase during the past five years will provide for the handling of business for a future period of from fifteen to twenty-five years.

The completion of these improvements has enabled Southern Railway to concentrate at Finley Yard, work which has been done at four different points scattered over a territory of ten miles, and will insure against yard congestion and promote an easy flow of traffic thereby resulting in increased efficiency in handling the heavy business of the Birmingham district and the large amount of through business passing through Birmingham.

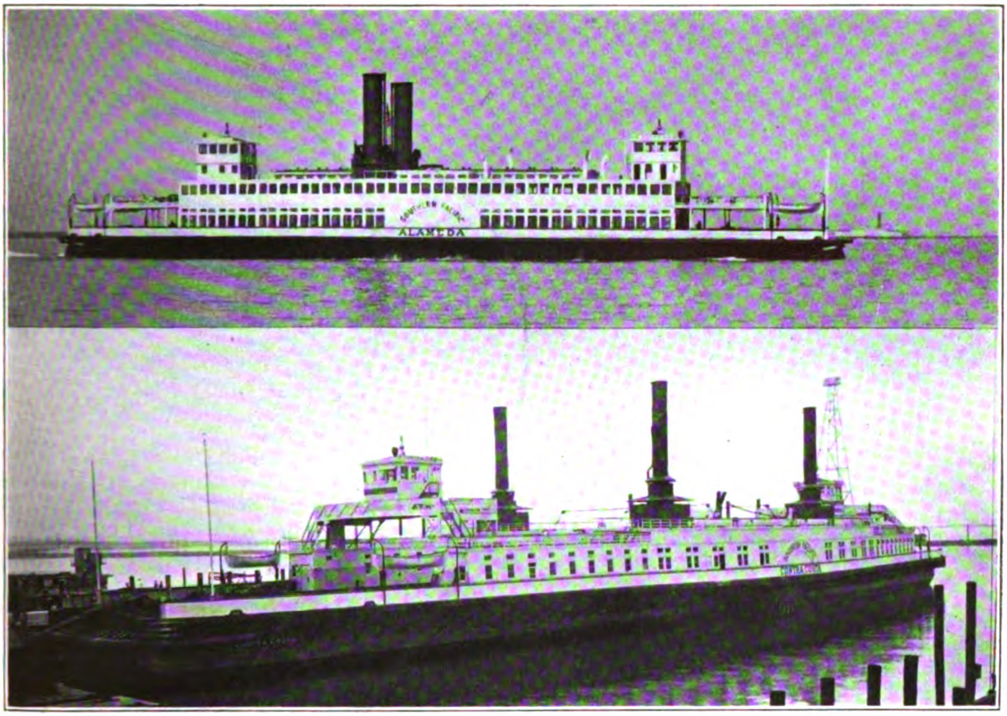
Important Addition to be Made in the Spartanburg Yard of the Southern Railway.—In connection with its modern export coal terminal, now under construction at Charleston, Southern Railway announces that on February 1st, it will begin work on important additions to its Spartanburg yards and will also extend a number of passing tracks between Spartanburg and Charleston so as to be ready to handle the long trains required to move the increased volume of coal traffic from the Tennessee and Southwest Virginia fields which it is hoped will be developed. It is expected that the terminal will be completed by May 1st and the additional track facilities will also be ready by that time.

Two additional receiving tracks will be constructed at the Spartanburg Junction classification yard and two at East Spartanburg. Passing tracks will be extended at Carlisle, Alston, and Herbert on the Spartanburg Division and at Riley and Fort Motte on the Charleston Division. These extensions will make possible the handling through from Spartanburg to Charleston of the maximum tonnage of the power now in use, pusher service being provided from Kingville to Riley, 17 miles.

While on account of the decreased revenues, resulting from the business depression, very little work of this character is being undertaken at this time, Southern Railway determined to make these particular improvements so as to be able immediately to give the coal mine operators on its lines the fullest advantages from the construction of the Charleston Terminal.

New Ferry Boats of the Southern Pacific.

THE accompanying illustration shows two ferry boats which have recently been put in service by the Southern Pacific at its California terminals. The Contra Costa is reported to be the largest ferry boat in the world, being 433 feet long and carrying four tracks with



Two New Ferry Boats Recently Put in Service by the Southern Pacific Company at its California Terminals.

a capacity of thirty-six freight cars and two engines or twenty-four passengers and two engines. For safety there are fourteen bulkheads, any one of which may be punctured without sinking the vessel. The engines are located below the level of the main deck, thus giving ample track room above. Oil is used for fuel and electricity for lighting purposes.

Interstate Commerce Commission

Depreciation of Equipment Report.

THE Commission has issued a general order calling for certain information bearing upon the procedure of carriers with respect for accounting of depreciation of their equipment during the first three months of the fiscal year beginning July 1, 1914. Duplicate forms are supplied on which this report is to be made, one when filled out to be sent to the Commission, and the other retained by the carrier for reference and correspondence. The following is the text of the order:

It Is Ordered: That Special Report Series, Circular No. 20, be, and the same is hereby, approved; that copies of the said Special Report Series, Circular No. 20, be sent to each and every carrier by rail (exclusive of electric railways) subject to the jurisdiction of this Commission; that each of said carriers be required to make, under oath, full and true answers to the several inquiries contained in the said circular; and that responses be forwarded to the Commission to reach Washington on or before March 1, 1915.

By the Commission:

GEORGE B. McGINTY,
Secretary.

Recent Important Decisions.

IMPORTANT new policies of the Commission have become known recently. The first was the granting to transcontinental railroads permission to charge lower rates on certain commodities from Eastern points to Pacific Coast terminals than to intermediate points in intermountain territory, thus enabling the railroads to meet Panama Canal competition. The second was the granting of permission to the Southern Pacific Railroad to continue its holdings in the Pacific Mail Steamship Company.

It was pointed out by the Commission that unless the carriers were allowed to establish rates to compete with the canal rates, producers and manufacturers in the Middle West would have to give up their Pacific Coast business or seek an Atlantic Coast site where the canal route became available, with the consequent loss of business to the railroads. Adjustments were allowed to meet this situation.

As to the general policy of the Commission in reorganizing the right of the railroads to fair competition with the steamships for transcontinental business, it is stated that:

"To secure any considerable percentage of this coast-to-coast traffic, rates on many commodities must be established by the rail lines materially lower than those now existing. As we view it, the Panama Canal is to be one of the agencies of transportation between the east and the west, but not necessarily the sole carrier. If the railroads are able to make such rates from the Atlantic seaboard to the Pacific Coast as will hold to their lines some portion of this traffic with profit to themselves, they should be permitted to do so.

"The acceptance of this traffic will add something to their net revenues and to that extent decrease and not increase the burden that must be borne by other traffic. It will also give the shippers at the coast points the benefits of an additional and a competitive service."

In granting permission to the Southern Pacific to continue its control and operation of the Pacific Mail Steamship Company, the Commission did not lay down a general policy except to say that it regarded this joint ownership of public benefit. Before applying for such permission, the steamship company voluntarily announced its withdrawal of through service through the Panama Canal to Atlantic ports.

Investigation of Accidents by the Division of Safety.

THE Commission has investigated the derailment of a passenger train on the Delaware, Lackawanna and Western Railroad which occurred near Alfred, Pa., and which resulted in the injury of twenty-three passengers and twelve employes. The derailment was caused by a broken rail and the report of the Commission's engineer physicist, shows that the failure of this section of the track was due to the presence of transverse fissures. To quote from the report:

"Eight were displayed in all—four were disclosed at the time of derailment and four in the subsequent examination of the fragments. This rail had been in the track a period of three years and four months. Fissures were found in different stages of development from one of crescent-shaped 0.2 inch in diameter up to the one which was first to fracture at the time of derailment, and which measured 1¾ by 1¼ inches.

"A period of three years has elapsed since attention was first called in accident reports to this type of fracture, peculiar to steel rails. Examples of this type continue to multiply, and during this interval five accidents caused by transverse fissures have been investigated. In these accidents 32 persons were killed and 196 injured.

With no changes introduced in track conditions and the continued use of those grades of steel which have displayed these progressive fractures after longer or shorter periods of time, there seems no assurance whatever that this menacing type of fractures will not occasion further accidents.

"In conclusion it appears:

"That the failure of the rail which was responsible for the derailment of train No. 32 was due to the presence of transverse fissures.

"That the physical properties and composition of the metal of the rail were uniform and normal for steel of this grade of hardness.

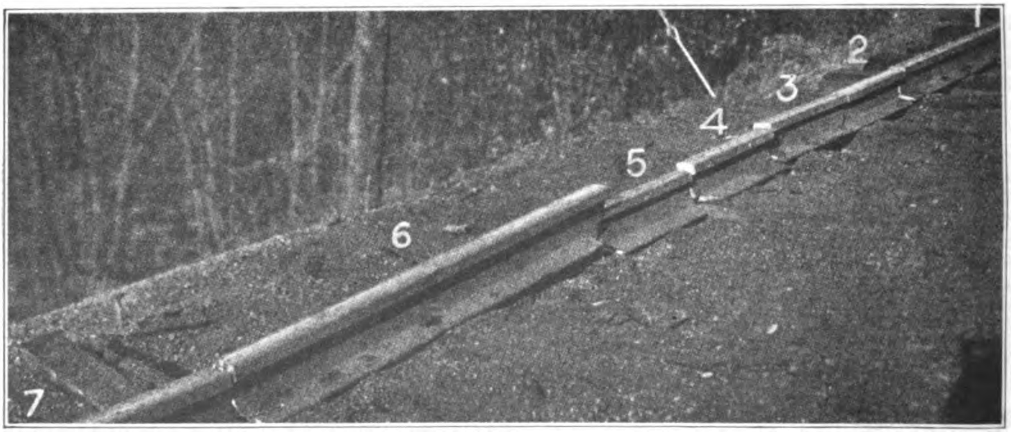
"That the formation and development of these transverse fissures is attributable to service conditions in which high-wheel loads and hard steel are vital features.

"That the transverse fissures were progressive in their formation and were exhibited in this rail in different stages of development.

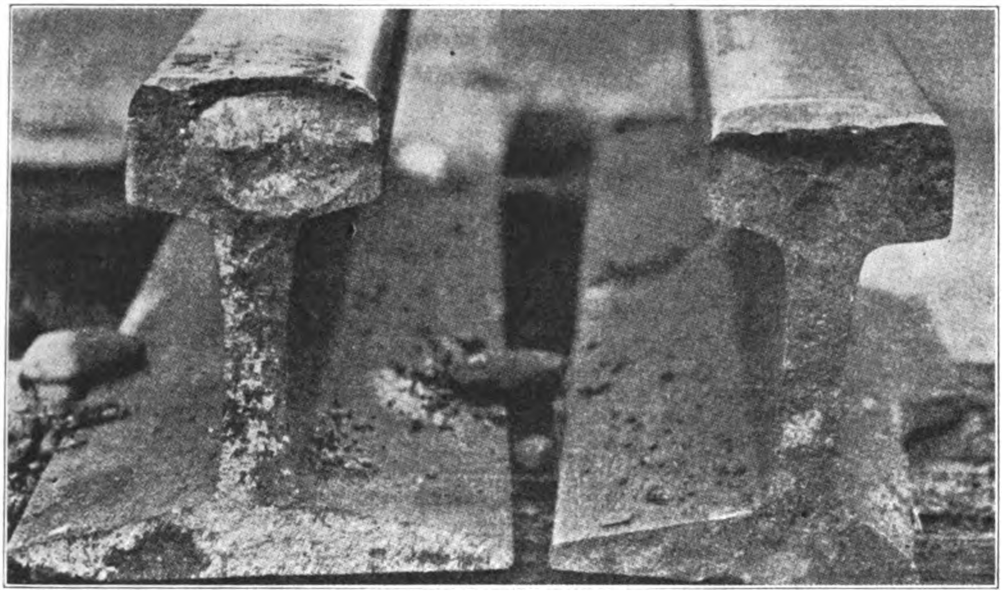
"That the growth of transverse fissures is the result of repeated stresses, and their formation occurs in consequence of overloads applied to the rail while in service.

"That the presence even of a small transverse fissure is detrimental to the rail and occasions a serious loss in tensile strength of the steel in its vicinity."

The Commission has also investigated the derailment of a passenger train on the Baltimore and Ohio which occurred near Woodlyn, Pa., on September 19th, and which resulted in the injury of thirty-four passengers, three Pullman employes and one employe of the railroad. The train was known as westbound passenger number three, and consisted of two mail cars, one combination baggage and express car, one smoking car, one coach, two Pullman sleeping cars and one parlor car. The coach and the parlor car had steel underframes and the other cars were of all steel construction. The derailment was caused by the breaking of the forward axle of



FRAGMENTS OF RAIL, REPLACED ON THE TIES AFTER DERAILMENT. TRANSVERSE FISSURES WERE PRESENT BETWEEN FRAGMENTS 1 AND 2, 3 AND 4 AND 5 AND 6 AND 7.



TRANSVERSE FISSURES AT INITIAL PLACE OF RUPTURE OF THE RAIL BETWEEN FRAGMENTS 1 AND 2.

the locomotive tender, the speed of the train at the time being fifty-seven miles an hour.

After the derailment, the tender wheels ran along on the ties until they reached the western end of the north passing track. At this point the frog was thown out and the entire train derailed. About 150 feet beyond this point is a double-deck single span truss bridge 167 feet 4 inches in length. The locomotive and first five cars passed over this bridge in safety, the locomotive coming to a stop 710 feet beyond the west end of the bridge with the derailed tender coupled to it. About 25 feet north of the locomotive, were the first four cars of the train, upright on the ties. The fifth car turned over to the right immediately after crossing the bridge and came to rest with its roof against a telegraph pole at the top of a 25 foot embankment. The sixth car, an all-steel Pullman sleeper, swerved to the right enough to strike the end post of the right hand truss of the bridge after which it plunged to the track below, a distance of about 25 feet. The damage caused to the bridge by this car was responsible for its collapse. The second Pullman sleeping car stopped with its forward end projecting over the bridge abutment and was also leaning to the right against a telegraph pole. The last car in the train, a parlor car, was also derailed but remained upright at the top of the embankment immediately behind the second sleeping car.

The fractured axle which caused the trouble, represents one of the largest in common use for tender trucks. The conclusions reached in the Commission's report, are as follows:

"That the derailment of train No. 3 was due to the fracture of a tender axle.

"That the type of failure was a progressive or detailed fracture, starting from one side of the axle and thence extending inward.

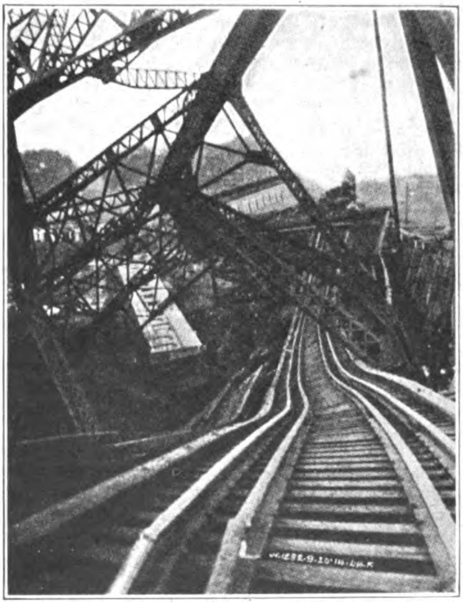
"That final rupture occurred when there remained intact only about one-quarter of the original cross section of metal.

"That the fracture of the axle occurred on the wheel fit, at a place some three-sixteenths to seven-sixteenths inch within the section covered by the hub of the wheel.

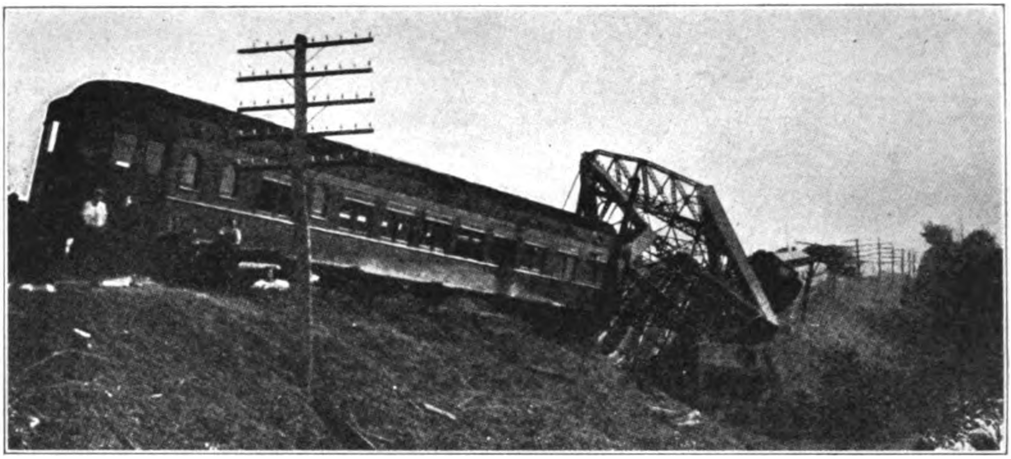
"That the location of the place of rupture was probably influenced by circumferential scoring on the surface of the wheel fit, which the plane of rupture followed over a part of its course.

"That the scoring was a defect of workmanship incident to the period of finishing the axle or when the wheel was being pressed on the end which subsequently fractured.

"The investigation by Mr. Howard showed that steel of good quality was used in the axle



VIEW OF WRECKED BRIDGE LOOKING NORTH, SHOWING STEEL CAR ON ITS SIDE AT FOOT OF EMBANKMENT.



General View of Wreck Looking South.

which failed, the immediate cause of failure appearing to be the presence of a surface defect on the wheel fit, which place marked the location of rupture. The fracture of an axle of this size is a very disquieting matter, provided no unusual and specific cause is discovered. The influence which surface defects have in limiting the endurance of shafts and axles is well known, and the presence of such a defect on this axle is in a way reassuring, since it removes a doubt which would attach to all axles of this class if no local defect led to its failure.

"The customary inspection in this instance did not guard against defects of workmanship, nor in the case of this axle did it afford assurance that the material inspected by representatives of the Baltimore & Ohio Railroad would be used to the exclusion of other material not inspected by them. However, the inspection of the material in the present case had only an indirect bearing, a more vital feature pertained to the workmanship and assembling of the wheels on the axle.

"The axle failed prematurely, the only assignable cause for which is found in the surface defect on the wheel fit, to guard against the recurrence of which is a very obvious desideratum.

"The behavior of steel cars is brought into prominence in this accident. In several of its annual reports to Congress the Commission has called particular attention to the desirability of all cars used in high-speed passenger train service being constructed of steel, and in connection with many serious accidents investigated attention has been called to the damage sustained by cars of wooden construction as compared with cars of steel construction."

The accident here under investigation affords another exceptionally interesting opportunity for a study of the behavior of the all-steel passenger car in a serious derailment. The train involved was running on straight track at the rate of 57 miles per hour. Although the impact of the heavy all-steel sleeping car Rachita against the end of the modern steel-truss bridge, while moving at high speed, damaged the bridge to such an extent that it collapsed, throwing the sleeping car to the track below, a distance of 20 or 25 feet, yet the car was not seriously damaged, and none of its occupants killed or seriously injured. While, of course, it is conjectural what would have happened had this car been of wooden construction, yet it is probable that had a wooden car been involved it would have been seriously damaged, if not destroyed, with the majority of its occupants killed or seriously injured.

STATE COMMISSIONS.

California.—Under date of December 30th, the Railroad Commission of California submitted to the United States Senate Postoffice Committee a copy of a report made by its rate department concerning the question of mail revenue paid by the government to the railroads. This report, the Commission asserts in its letter to the committee, discloses a condition which it believes should be carefully considered by those having in charge the adjustment of the compensation to the railroads for carrying parcel post packages.

The Western Association of Short Line Railroads interested the Commission in the subject and the Commission, in its letter to Chairman Bankhead of the Senate Committee, states that "obviously, if these railroads are forced to carry certain traffic at unremunerative rates, the remaining traffic must bear an undue share of the burden or the railroads must lose the difference between the unremunerative rate and a fair rate."

The report states, in part:

"The short line railroads operating west of Rocky Mountain territory vigorously protest against the enactment of two bills now pending in Congress—the Moon Bill and the Bourne Bill —claiming that should either of these be passed the compensation paid by the government for the carriage of mails, which is already too low, will be further reduced."

It then points out that the railroads suggest that the present method of handling mail and arriving at rate of compensation be changed in three important particulars. These are: That the government divide the country up into districts and grade the rate of pay according to the territory in each district, particularly as to population, character of country through which the roads operate, etc.; that the mails be weighed annually instead of quadrennially, as at present; that the railroads be relieved of the terminal services of delivering mail to the post-office.

Concerning these suggested changes, the report states:

"The territory west of the Rocky Mountains is comparatively sparsely settled along the lines of the small railroads and many of these lines operate in a mountainous section under conditions which do not obtain in the Eastern and more populous sections of the east. It would seem as though it would be fair to consider all the operating conditions of the short line railroads in the west anl if it developed that the rate of pay was based on conditions of operation less severe than in the west, then a higher rate should be allowed the western short lines. It seems reasonable that if it is fair for some line in the east having a larger volume of traffic and a level country to operate through, then the same rate is unreasonably low where the road operates through a sparsely settled country producing little traffic and operating under severe conditions. The Interstate Commerce Commission deemed it advisable to differentiate in the rates granted express companies and divided the country into zones prescribing higher rates in one zone than in the other.

"As to the weighing: The last quadrennial weighing took place in the spring months of 1914. Since the weighing was completed and the average arrived at which must govern for four years the weight of parcel post packages which will be transported has been raised to fifty pounds, and as a result shipments of all kinds are now moving by parcel post which formerly moved by freight. It is apparent that the weight now carried is vastly in excess of the average obtained in the spring. In many cases the railroads claim to be handling from three to five times as much as they are being paid for. It seems to me that the government plays a game at which it cannot lose, for the average obtained by weighing mail for several months will scarcely hold good for over four or five months thereafter, even if the weight of the package which will be carried is not increased.

"The business is constantly increasing from year to year and the government makes a clear gain of all the increase in business for about three and one-half years out of every four. The railroads at the end of a four-year period pick up the slack for a few months and then proceed to haul all of the natural increase in the traffic for nothing until the next quadrennial weighing. I think the whole arrangement is unjust to the carriers and they should be entitled to an annual weighing.

"As to the contention of the carriers that they should be relieved of the terminal service I am unable to determine whether or not the rates now paid if on a reasonable weight basis contemplate delivery at post-offices. If the post-office is within a certain distance of the depot carrier makes delivery, otherwise not, but inasmuch as the same rate obtains in either event, it is apparent that the extra service of delivery to post-office was not considered unless, perhaps, the government figured the cost of delivery at such points as it is performed and spread it over the entire system. It seems to me more logical that the rates be based on the transportation service only, and that the government either take delivery at the depot or pay the carriers for performing the service."

New York.—Figures contained in the annual report of the second district public service commission to the legislature, summarizing the financial operations of steam and electric railroads, electric and gas corporations and telephone corporations reflect in an interesting way the general business conditions as they affected these activities.

Though the bulk of railroad business has grown one-quarter since 1907, there was a falling off in 1914 as compared with 1913. Only in the matter of dividends paid, however, do the railroad figures fall below those of 1912. The amount of dividends paid, due to the increase in operating expense larger than the increase in operating revenue, was less than any year since 1909.

During the year ending June 30, 1914, railroad operating revenue decreased $21,131,047 or 2.9 per cent less than the year ending June 30, 1913, but they were more than the revenues for 1912 and were 22.8 per cent larger than the revenues for 1907.

Expenses, on the other hand, increased 1.9 per cent over 1913, and 29.5 per cent over 1907. This resulted in a decrease of net revenues of 14.5 per cent from the previous year. Net revenues for 1914 were 7 per cent more than for 1907.

Freight ton-miles fell off 6.5 per cent during the last year but passenger-miles continued to grow, the increase for the year being 1.5 per cent. The roads carried 25.9 per cent more tons one mile in 1914 than in 1907 and 29.1 per cent more passengers one mile.

The figures for steam railroads embrace all of the operations of the companies reporting to this Commission and are not confined to operations within the State of New York. The statistical year in all cases ends on June 30th.

Unlike the steam roads, electric railroads show a substantial increase over 1913 in the matter of net revenue, despite increases in expenses, and the astonishing growth of 66 per cent over 1907. The figures for electric roads do not include freight traffic as this is insignificant compared to the passenger business of such lines.

Operating revenues increased 6.6 per cent over 1913 and 66.2 per cent over 1907; the increase in expenses was correspondingly 7.2 per cent and 66.3 per cent; and net revenues increased 3.6 per cent during the year. Electric roads in this state paid dividends of $3,662,433 in 1914 as compared with $4,298,982 in 1913. But dividends were almost the same as those paid in 1912 and very much larger than for any year previous to that.

LEGISLATION.

Developments at the National Capital.

THE legislative history of the present Congress, which comes to an automatic close at noon March 4th, is practically written, so far as it affects the transportation industry. Two exceptions might, however, be made: first, as to the question of railway mail pay; second, as to the rapidity with which the physical valuation of railroads by the Interstate Commerce Commission shall proceed.

The 63d Congress will undoubtedly come to a close without further action on the so-called railway securities bill, passed by the House and now pending before the Senate Committee on interstate commerce. Since it was displaced, in the administration's program, by the ship purchase bill, it has been practically "dead" and no step has been taken to revive it, even with a view to its consideration in the next Congress. If it is to be enacted into law in the two remaining years of the Wilson administration, it must again be passed by the House, with a greatly reduced democratic majority, and be the subject of protracted discussion in the upper house of Congress. Representatives of the railroads will be given a hearing before the Senate committee on interstate commerce before any action or consideration by the Senate, with chief attention directed to the substitute prepared by Senator Newlands, which would enlarge the Interstate Commerce Commission and give it greater powers of supervision over the issue of railway securities.

Likewise "dead" is the Adamson bill, prepared by officials of the Department of Justice, for a more stringent law to replace the present "commodities clause" of the amended interstate commerce act. A hearing on this bill was given before the House interstate commerce committee, to allow the presentation of the views of the Department of Justice. George C. Todd, assistant to the Attorney General, was the only witness and he advocated the Adamson bill as affecting an absolute divorce between railroads and articles which they transport. Much time was spent during the statement of Mr. Todd to a discussion of the limitations placed on the present "commodities clause" by decisions of the United States Supreme Court and of other courts. The new law now proposed, he pointed out, is aimed to eliminate the exceptions (1) that the "commodities clause" does not hold where the railroad company eliminates itself from ownership of the commodity before accepting it for transportation; and (2) that the prohibition does not apply to commodities owned by a company in which the railroad owns stock.

When the question of tap lines was brought up, Mr. Todd admitted that the bill, as drafted, would prevent ownership of tap lines by producing companies, such as lumber companies. He did not urge that an exception be made for tap lines, but did admit that such an exception was a question of public policy which it was within the jurisdiction of Congress to decide. There was a discussion of the constitutionality of providing exceptions for tap lines, or in other cases, and it was urged that such a question would have to be left to the courts to decide, if Congress concluded that public policy dictated one or more exceptions.

There is a strong feeling in Washington that especially strong pleas will be made, when this legislation is pushed, in behalf of the tap lines. Discussions at the hearing indicated that there would be a proposal to allow the Interstate Commerce Commission to pass upon exceptions, much as it is now allowed to pass upon applications for exceptions from the "long and short haul" clause. At the time of the hearing, Congressman Adamson, chairman of the House committee on interstate commerce, announced that representatives of the railroads would be given an opportunity to be heard before the committee acts on the measure. The committee has since adjourned for the remainder of the session.

While there will be no action at this session on the railway securities and commodities clause bills, there may be action on the question of railway mail pay, involved in the post-office appropriation bill. It will be recalled that the House has put into the bill provision for a new system of railway mail pay based on a space allowance. Although certain politicians claim for the plan increase of about $2,000,000 in the compensation to the railroads next year, it has been confidently predicted by its chief sponsor, Representative Moon, that it would ultimately provide a saving to the government of several millions a year.

When the Senate committee on post-offices acted on the measure, it eliminated all the provisions for the new system of mail compensation. This would allow the continuance of the present system for at least another year, with the appropriation for the payment to the railroads about $2,000,000 more than last year. As the committee is expected to be upheld in the Senate, there is sure to be a tug of war in the conference between representatives of the House and Senate to adjust the differences. If a new system of railway mail pay is to be enacted at this session of Congress, it will undoubtedly be written by the conference committee. That "if" looms large, however, as the Senate conferees are expected to resist such a radical step. Furthermore, if the filibustering that has marked the sessions of the Senate during the past few weeks continues, as appears probable, the supply bills will be thrown over into an extra session. There is no doubt that the pleas for the railroads, presented to Congress through a great variety of sources, coupled with reports of decreased earnings, have had their influence upon members of Congress.

The question of further work in the physical valuation of the railroads is involved in the sundry civil appropriation bill and the House has approved an appropriation of $3,000,000 for continuing this gigantic task during the next fiscal year, beginning July 1st.

An effort was made, when this item was under discussion in the House, to eliminate this appropriation and Representative Gillette, of Massachusetts pleaded that the country and the government was not in a financial condition to continue this task at this time. He pointed out that the railroads were expending as much as the Commission in making a physical valuation of their properties, and, in one case at least, a railroad was spending twice as much. On the estimates already made, he urged that the cost of this work to the country would be about $40,000,000 and that at the end of the ten years which it will take to complete the work, much of it will be obsolete. The pleas against this expenditure, however, proved unavailing.

This appropriation of $3,000,000 will probably enable the work to progress twice as rapidly as it has during the current fiscal year. It doubled the amount of money available for field work and the Commission estimates that it will be enabled to carry on the work at the rate of about 50,000 miles per year. At that rate, it would be completed within four years from July 1st, next.

A new piece of railroad legislation which has attracted some attention in Congress but which, it is admitted, cannot be acted upon in any way during this Congress, was presented recently by Congressman Hamilton of Michigan. The bill, H. R. 21381, proposes to insert in section 6, as amended, of the act to regulate commerce, approved February 4, 1887, after the words "nor extend to any shipper or person any privileges or facilities in the transportation of passengers or property, except such as are specified in such tariffs," this provision:

> "and every carrier shall collect the published rates, fares or charges applicable to every commodity or shipment transported by said carrier at the time the shipment moves or within ninety days after the shipment is delivered to the consignee, and every extension of credit to a shipper by a carrier beyond said period of ninety days is hereby declared to be unlawful; Provided, that in case a mistake has been made by an agent and a charge less than the published rate has been collected for a particular shipment such mistake may be corrected and the proper additional amount collected from the shipper, upon the approval in writing of the Interstate Commerce Commission, provided the application to the Commission for such approval shall be made within two years after the shipment was delivered, specifying the date when the shipment moved and was delivered, the amount collected, the amount of the tariff charge and the reasons for such application; and provided further, that nothing herein shall relieve or excuse the carrier from any liability for and the payment of any penalty provided in this act or in any other act of Congress, for failing or neglecting to collect the full published rate or charge."

Campaign Against Full Crew Laws Begun.—R. L. O'Donnel, chairman of the Executive Committee of the Associated Railroads of Pennsylvania and New Jersey, has issued the first pamphlet in the campaign of those railways to bring about the repeal of "full crew" laws of those States. The pamphlet, which is entitled "Why Extra Crew Law Hurts the Public," contends that the statute requires employment without service, work violence to economic law and puts labor in a false position.

The law, it is argued, promotes neither safety nor efficiency, but operates against the public good, in that it forces a waste of $2,000,000 a year, the cost of which is borne by the people. It is also asserted that the requirement forces an expenditure by the railroads which takes money that otherwise would be available to improve transportation facilities and service. The pamphlet says that full crew laws have been defeated in many States and recalls particularly the defeat by referendum of the full crew law in Missouri by a vote of 324,085 to 159,593.

Statistical arguments are also presented in the pamphlet. One of these is summarized as follows:

"Fifteen of the twenty railroads in Pennsylvania and New Jersey last year paid in employment of superfluous brakemen $1,154,928. That would have bought 151 steel cars; it would have bought 60 locomotives; it would have paid for 50,500 tons of rails; it would have returned five per cent on $30,300,000; it would have block-signalled 600 miles of track; it would have eliminated 50 grade crossings."

Interstate Commerce Commission figures are presented to prove that the extra men have not made for safety. One compilation, based on records of the Pennsylvania lines east of Pittsburg, is presented to show that accidents have increased since the operation of trains under the full crew law. It is specifically stated that in the attempt to have the laws repealed no attack is made upon labor organizations.

LABOR.

Progress in the Arbitration Proceedings of the Western Engineers' Wage Controversy.

IT would appear to those who have been following the developments of the past few weeks before the Federal Board of Arbitration at Chicago, in the matter of increased wage demands made by engineers and firemen on Western railways, that the men's case has suffered an almost complete collapse. So preposterous have been their demands and so inaccurate some of their testimony and exhibits that never before have railway managers been able to disclose so clearly, evidence of grave unfairness. Furthermore, it has been so conclusively shown that the wages of Western engineers and firemen are so far in excess of those paid in the East, or in fact, paid to labor in any other branch of industry, that the intolerant and arbitrary attitude of the organizations representing these men, is a matter of grave concern to future railway developments, and there is a strong feeling, that in the present controversy, the men's demands must be refused in toto, in their application to any increase in wages.

The hearing has developed that the concerted wage movement being arbitrated by the Board affects 140,000 miles of railway and would involve an added cost of approximately $41,000,000 in compensation. The present wage scale in the West provides $4.30 a day for passenger engineers operating engines under 80,000 pounds, to $5.00 or over per day on larger engines. This compares with $4.25 paid on all engines in the East, the Western minimum being thus above what is paid for all in the East. In spite of this fact, the Western men now demand a new range from $4.50 to $5.60 per day. Following the comparison further, freight engineers in the East receive $4.75 for nearly all sizes of locomotives, whereas, Western freight engineers now receive from $4.35 for engines under 80,000 pounds, to as high as $5.65 on the larger locomotives, exclusive of mallets. The men now demand from $5.00 to $6.40.

It clearly developed, as the testimony proceeded, that the engineers and firemen in the West were already higher paid and had more favorable rules than in any other section of the country; while the new rates and rules demanded would create a greater disparity by placing in universal application the high watermark in rates and rules now found on small portions of western mileage, whether or not now granted for individual local conditions. For example, the men demand that, upon completion of a run, however short the division, they be automatically released from duty, and if required to perform any additional service at all, it shall start a new day. This would be equivalent to receiving another day's pay. Only on two roads is this now granted and even on them, because of local variations in conditions, numerous exceptions are provided. A mass of rules on a number of railways was introduced which are contrary to the principle of such release.

How arbitrary are the demands of the men and how unfairly would rest the burden of the tremendous increase asked for upon the shoulders of the Western roads, and in the last analysis, upon shippers and the general public, is indicated by the fact that these men are already the highest paid class of employes in railway service in any territory. This added burden on almost two-thirds of the United States would go to add to the compensation of engineers who already earn as high as $358 per month and $3,725 per year, and firemen, their apprentices, who already earn as high as $221 per month and $1,890 per year.

Sharper point was given to the figures by the fact that they were based upon the individual time slips of every engineer and fireman who worked on any of the roads affected in the month of October, 1913, the month in which the demands were put before the railways. In that month engineers would have received added compensation of $1,759,008 and firemen $1,653,391, while with added payments necessary for hostlers, motormen and helpers, the total increase for the month would have been $3,855,971. This is an increase of 51 per cent over the present basis of pay.

Furthermore, payments necessary for some of the incidental services for which extra pay now is demanded, but which always have been considered in all sections of the country as part and parcel of the process of running or firing a locomotive, in many instances would be increased three and four times over, while in one instance the ratio increase would be 26,811 per cent.

In other words, of the almost $41,000,000 involved more than $2,000,000 would be required to engage new labor to relieve these already highly paid employes of duties always considered necessary incidentals to their work; while almost $39,000,000 would be added to the pay of these men for performing less service than they had before.

Testimony introduced to show the preposterous results from the "pyramiding" of the many compensatory rules demanded by the men and which would apply to the same run, all working to pile up extra pay for hitherto incidental service, performed by the same men, developed the startling fact that under such conditions, engineers could receive wages of over $1,400 per month and firemen more than $900 a month. As James M. Sheehan, counsel for the roads, remarked: "Some of the men's present earnings now actually exceed those of seven state governors and almost equal those of seven others. If the men, however, get what they now demand, as we show here, their earning capacity would be more nearly around that of the President of the United States." The rule that a crew reaching the end of a run, however short, shall be paid 100 miles therefor, was cited as one of the worst examples. A crew in "turn around" service, running out and in often four or five times a day on a run of 10 to 15 miles, under this rule would receive a full day's pay for 100 miles for every run each way.

As a few other instances to demonstrate the preposterous working of these proposed rules, an engineer between Galveston and Houston, who runs 53 miles each way daily, working 3½ hours a day, received in the one month $163.20. Under the new rules he would draw $356 for the month. Another on the same length of run earned actually $170.37 and would have earned under these rules $309.78. Another freight engineer who actually earned $201.86 would have earned $332.55. Still another engineer in mixed train service, who actually earned $226.94 for the month, would have earned $1,088.13 for his single month's work. Another engineer who received $243 for the month would have received $626, while his fireman, who actually received $148.05, would have got $408.59."

As a further illustration of the unusually liberal compensation now made Western engineers and firemen, it was pointed out that captains of steamers in the trans-atlantic or trans-pacific service, are paid a maximum of $275 a month, as against a maximum for the Western engineers in October, 1913, of $358. The minimum pay for captains in trans-atlantic or trans-pacific service is $140. The average earnings of an engineer on these western railways is $165 a month, against which the chief engineer of these ocean-going steamers averaged about $150, and it should not be forgotten that this chief engineer is a master mechanic who must understand all details of his vast machinery and be able to repair it at sea.

Of all the engineers in passenger service in the month of October, 1913, the summary showed 4,478 earned $150 or over per month. Of these, 2,842 earned $200 or over. Of all engineers in through or irregular freight service, 5,560 earned $150 or over, while of this number 1,430 earned $200 or over per month. Of all engineers in all services, 18,197 earned $150 or more, of which 4,019 earned $200 or more. Three engineers were shown who earned between $358 and $366.65 in a single month.

It was pointed out that about three-fourths of the railway service is what is termed "Assigned Service." This means a run is assigned to one crew or several crews, and the definite earnings are there for them to take if they choose or to leave for someone else if they choose. Men in this definite assigned service actually now earn as high as $331 per month, and every man in assigned service—75 per cent of the entire railway service—could average, if he worked full time, $197.79 for a month of 184 hours, or only six hours a day.

That is what these men could earn if they accepted all the companies offer them. If they do not, the only reason is because they lay off a great portion of the time, voluntarily losing some of their pay. Out of 5,412 passenger engines only 2,876 worked the full month. Of their total assigned mileage of 22,849,739 miles, they left for someone else to perform 2,410,000 miles, thus losing about 10 per cent of their possible earnings.

Similar information for engineers in local or way freight service shows that these men laid off and lost their pay for 20 per cent of their possible service; engineers in mixed train service for this reason lost 15 per cent of their wages; engineers in helper or pusher service lost 25 per cent of their possible earnings; those in yard service, 20 per cent; and those, in through or irregular freight service, 22 per cent.

Turning to the firemen, it is shown by the actual figures that those in assigned passenger service laid off and lost their pay for 17 per cent of the work offered to them; those in way freight service, 22 per cent; those in mixed train service, 27 per cent; those in helper and pusher service, 25 per cent; those in yard service, 25 per cent and those in through or irregular freight service, 30 per cent.

To show what the engineers and firemen could earn if they did not lay off a large part of the month, the exhibit placed before the board the number of assigned men, the total miles they ran, their hours on duty, their total earnings, their average earnings, and the name of the engineer who received the highest wages in each assignment, as well as the amount and name of the engineer who received the lowest wages paid to one man who worked the full month during that month. Coupled with this was a showing of the actual time in which each man's assigned service was performed by someone else, showing that he himself had laid off.

The lay-offs of this character were shown to range from one day to several months' time in the year, with yearly earnings generally from $1,900 to over $3,000.

One engineer laid off 106 days in the year and earned $3,239. Another, off four months in the year, earned $2,000. Another who laid off 38 days, earned $3,088 for the year.

Other examples of yearly earnings with the time off from duty were:

$3,121 with 11 days off	$2,812 with 44 days off
3,091 with 63 days off	2,605 with 61 days off
2,893 with 14 days off..	2,603 with 29 days off
2,876 with 25 days off	2,526 with 62 days off
2,838 with 58 days off	2,483 with 65 days off
2,819 with 53½ days off	

The average time on duty of engineers in the service covered by these men was about seven hours per day.

Another interesting development at the hearing was the fact that in spite of the strenuous assertions on the part of the Union that the labors of the firemen had greatly increased owing to the larger locomotives, it was found by actual stop-watch tests that the firemen on Western railways occupied more than two-thirds of their time viewing the scenery along the right-of-way. These stop-watch tests were made on twenty representative Western roads by traveling engineers, who remained in the cab of the locomotive and recorded every move of the fireman. If he was engaged in any duty at all, either shoveling coal into the fire-box, shoveling down coal, sweeping the deck, shaking the grates or doing anything other than sitting still in the seat box or standing on the gang-way idle, he was credited with the performance which was classified and timed by the stop-watch.

The average of these 1,566 trips on locomotives of all kinds, shows that the firemen were engaged in supplying coal to the fire-box one hour and forty minutes, or 19 per cent of all, which was less than one-fifth of the time he was paid for. For 12 per cent more of the time, he was either sweeping the deck, shoveling down coal, shaking the grates, hooking the fire or operating the injector. In all, he was occupied at some work just 31 per cent of the time, while for six hours and five minutes, or 69 per cent of the time, he has absolutely nothing to do but look at the scenery. It was also shown through the same tests, that only 1,975 pounds of coal, less than one ton, were thrown into the fire each hour, while it is freely admitted that the average capacity of one man is from 4,000 to 5,000 pounds an hour.

Several developments during the hearing have placed the Brotherhood in a rather unenviable light. In one instance, the pay of certain engineers was inexcusably understated, while in another instance, certain statements which had been made by railway managers with reference to locomotive capacity, etc., were so employed, by leaving out certain parts of the quotation, as to give them a meaning or significance entirely contrary to what would have been indicated if a full quotation was made. Furthermore, the Brotherhoods denied the negro firemen the right to work at all on the Southern railways unless they received an average increase which would put them on a par with the white firemen, and which they admitted would cause the negro to lose his job. In fact a threat of a "closed shop" on Western railways was made by President W. S. Carter of the Firemen's Brotherhood, which would bar negro firemen who are excluded from membership in the brotherhoods, even from the opportunity to work at all, unless any award under the present arbitration is applied to negro firemen in the south equal with the whites. If wages of the colored firemen are made equal with those of the white men, the Brotherhoods admitted, white labor would eliminate the negro.

How pernicious are the activities of the railway labor organizations, not only in their constant demands for arbitrary and uneconomic increases in wages, but through their efforts to influence the passage of state and national laws by which the railways would be put to heavy additional and unnecessary expense, was indicated by an exhibit which showed that more than 3,250 orders of State Commissions affecting train operation in the Western States, have been made in the last four years, most of which created enormous cost. In the same time, 1,155 bills were introduced in Western legislatures, 208 of which were passed. This is aside from all municipal or federal laws and Commission orders.

The complicity of the Brotherhoods was clearly shown in pushing the passage of many of these bills, including full crew bills and bills limiting the length of trains. Article after article was read from the engineers' official organ, disclosing the continued activities of the Brotherhood in this regard. It was pointed out that the Board of Arbitration should fully appreciate that when one branch of a railway Brotherhood comes before it demanding enormous increases in pay, another branch of the same organization is pushing bills in the various states and in Congress which result in lessening the work of their members but increases tremendously the cost of operating trains.

Further developments will be recorded in next month's issue of the "Railway World."

ORGANIZATION NOTES.

American Society of Civil Engineers Uphold Alaskan Railway Commission.— The following letter was sent on January 22nd, to the President of the United States by Charles D. Marx, President of the American Society of Civil Engineers:—

Hon. Woodrow Wilson,
President of the United States,
Washington, D. C.

Sir:

As President of the American Society of Civil Engineers, I have the honor to submit for your consideration the following resolution which was adopted at the Annual Meeting of the Board of Directors of this Society held in New York on January 20th, 1915:

"Resolved, That, in the opinion of the Board of Direction of the American Society of Civil Engineers, it would be unfortunate for the present Alaskan Railway Commission to be superseded, and that the interest of the Public demands that the present Commission be allowed to carry out the construction as well as the location of the line."

The American Society of Civil Engineers is a National organization, and the opinion expressed in the above resolution voices the sentiment of the representatives of its 7,500 members.

Respectfully submitted,
(Signed) CHAS. D. MARX,
President, American Society of Civil Engineers.

Bi-Monthly Meeting of Pittsburgh Traffic Club.—The Traffic Club of Pittsburgh held their bi-monthly business meeting for members only in the Fort Pitt Hotel, Monday, the 8th inst. W. H. Higgins, Vice-President and Traffic Manager of the Wheeling Steel & Iron Company, presided in the absence of President Lalk. Messrs. A. R. Kennedy, Traffic Manager of the Pittsburgh Steel Company and John F. Lent, of the Lent Traffic Company entertained the members in a short sketch which was extremely amusing and most original. An excellent musical program was provided. E. B. Mitchell of the Pennsylvania System and chairman of the Annual Dinner Committee announced Friday, March 5th, as the date of the Thirteenth Annual Dinner. Spacious Memorial Hall has been secured for this occasion. The speakers will be Mr. W. L. Clause, President of the Pittsburgh Plate Glass Company, who will speak on: "The Federal Trade Commission," and Hon. John W. Weeks, Senator from Massachusetts, who will speak on: "The Relation of the Government to Business." Mr. George A. Blair, A. F. T. M., C. M. & St. P. Ry., Chicago, and a member of the Traffic Club of Pittsburgh, will act as toastmaster. President E. F. Lalk will preside. This annual dinner promises to eclipse any previous affair given by the pioneer Traffic Club of the country.

February Meeting of New York Railroad Club.—At the February meeting of the New York Railroad Club, L. B. Foley, superintendent of telegraph of the Delaware, Lackawanna and Western Railroad, read a paper on "Train Dispatching by Wireless," which dealt in detail with the experiments which this road has recently made along these lines and which has enabled it to develop a practical and effective train dispatching system operated by means of wireless communications.

"Made in America" Campaign.—An exposition will be held at the Grand Central Palace, New York, March 6th to 13th, with a committee of over one hundred leading American manufacturers and a Civic and Social Committee of leading Society and organization women representing over five million women of this city and country.

A National Convention to concentrate the work in the interest of "Made in the U. S. A." movement and increase its efficiency in the stimulating of American industry and our domestic and foreign trade, will be held in conjunction with the Exposition. "American Made" and "American Grown" products will be shown, in many instances machinery in operation showing actual manufacture. Space has already been reserved for canned and other food products, knit goods and textiles, beverages, medicinal preparations, automobile accessories, vehicles, printing and lithographing, leather goods, mirrors and novelties, clocks, art goods, household devices and equipment, office and business devices and equipment, mantles and grates, filters, gas devices, cement, hardware specialties, electrical devices, pianos and musical instruments and farm and dairy products.

International Engineering Congress, 1915.—The technical success of the International Engineering Congress is now well assured. Notwithstanding the difficulties arising as a result of the present European war, the Committee on Papers is able to count on from 200 to 250 papers and reports covering all phases of engineering work and contributed by authors representing some eighteen different countries. The Congress will therefore be truly international in scope and character, although the representation from the countries involved in the European war will naturally be less than originally planned.

The papers are now rapidly coming in and their character gives the fullest assurance that the proceedings will form a most important collection of engineering data and a broad and detailed review of the progress of engineering art during the past decade.

The Committee of Management is now issuing to all important engineering societies, in this country and abroad, invitations to appoint official delegates to attend the sessions of the Congress, and the presence of a considerable body of such delegates is well assured.

Executive Committee of Railway Business Association.—The General Executive Committee of the Railway Business Association for 1915 is announced as follows, being made up of the elected President, Treasurer and Vice-Presidents and the appointed Executive Members:

President, George A. Post; Treasurer, M. S.

Clayton; Vice-Presidents, S. P. Bush, Alba B. Johnson, H. G. Prout, W. G. Pearce, W. H. Cottingham, W. B. Leach, E. B. Leigh; Executive Members, J. C. Bradley, W. E. Clow, J. S. Coffin, O. H. Cutler, Henry Elliot, Irving T. Hartz, F. T. Heffelfinger, H. H. Hewitt, J. M. Hopkins, A. M. Kittredge, Robert P. Lamont, F. J. Lanahan, W. H. Marshall, Stephen C. Mason, A. H. Mulliken, Rudolph Ortmann, S. F. Pryor, W. W. Salmon, Justus H. Schwacke, G. W. Simmons, George T. Smith, James S. Stevenson, H. H. Westinghouse, W. W. Willits.

February Meeting of Canadian Railway Club.—At the regular February meeting of the Canadian Railway Club held on the ninth instant, Mr. J. W. Ambrose, chief engineer of the Toronto Terminals Railway Company, of Toronto, Ont., delivered an interesting address on the "Toronto Grade Separation." Speaking of accidents at grade crossings, he said:

"You may be surprised when I say that very little injury and death result at grade crossings. No casualty companies make any special reference to grade crossings as points of special hazard, which they would be sure to do if statistics indicated that it was warranted. Any accidents that do happen can usually be traced to carelessness of the public. The railways take all precautions possible and consistent with the traffic, so much so that the individual has come to place too much confidence in the railway and forgets his own responsibility."

The late Chief Commissioner, in the discussion of protection at a certain crossing, said: "Yes, and when we put in gates or watchmen then we begin to kill people."

As information regarding the carelessness of the public I quote one result of observations taken at many crossings:

No. 1.	Pedestrians	Teams	Autos	Total
Stopped and looked in both directions			48	48
Kept moving and looked in both directions	2897 or 12%	796 or 17%	125 or 13%	3818 or 13%
Kept moving and looked in one direction	4645 or 19%	764 or 17%	152 or 16%	5561 or 18%
Kept moving and looked straight ahead	17,363 or 69%	3021 or 66%	626 or 66%	21,010 or 69%
Total	24,905	4581	951	30,437
	or 100% in each.			

You will note that 13 per cent exercises reasonable caution, 18 per cent some caution, and 69 per cent failed entirely to take any precaution.

Banquet of Baltimore and Ohio's Metropolitan Division.—Approximately 300 of the employes of the New York and Staten Island Divisions of the Baltimore and Ohio Railroad, with their wives and guests, were present at the second annual banquet of these divisions held at the Broadway Central Hotel, New York, on the evening of February 6th. One of the effective decorations of the dining room was a fac-simile in royal blue and gold of the Baltimore and Ohio's "Safety First" shield containing the memorable answer of President Willard to the question: "Where do you place safety in relative importance among the ends to be sought in the operation of a road." The answer, emblazonry upon the shield in big fac-simile letters of the President's hand writing, was: "Above Everything Else."

The toastmaster for the occasion was W. Cornell, terminal agent of the Company's Pier 22, N. R., Manhattan, who introduced the more formal part of the evening's entertainment with appropriate words. Mr. C. C. F. Bent, the general superintendent of the New York Division and vice-president of the Staten Island Lines, welcomed the guests to the dinner and expressed his gratification at the large attendance and good spirit shown. Other addresses were made by Mr. J. M. Watkins, auditor of revenues from the general offices in Baltimore and C. W. Tomlinson, general Eastern freight agent, who read a comprehensive paper on: "The Best Way to Obtain Efficiency from Railroad Employes and Railroad Operations." Other addresses were made by W. H. Averell, the general superintendent of the Staten Island Lines and by Robert Van Sant, the editor of the Baltimore and Ohio Employes' Magazine.

Attractive favors were given to all who were present and the dinner committee surprised the guests by giving to each of them a handsome fountain pen decorated with silver filagree work. It was a keen disappointment that Mr. A. W. Thompson, third vice-president and chief operating officer of the Railroad, who was to have been the guest of honor of the occasion was kept away by an important business engagement. The guests included Mr. W. Cornell, Toastmaster; Mr. C. C. F. Bent, V. P. & G. S.; Mr. W. H. Averell, Gen. Supt. S. I. Lines; Mr. C. W. Tomlinson, General Eastern Freight Agent, B. & O. R. R.; Mr. W. F. Richardson, Commercial Freight Agent, B. & O. R. R. of Boston; Mr. J. M. Watkins, Auditor Revenue, B. & O. R. R., Baltimore; Mr. George J. Brown, General Traffic Agent, Staten Island Lines; and Mr. R. M. Van Sant, Editor, B. & O. Employes' Magazine, Baltimore.

Much credit is due the hereinafter mentioned committee for the brilliant manner in which they handled every detail of the affair: Mr. Thomas A. Kavanagh, chairman; Mr. F. N. Nelson, Mr. R. Briody, Mr. R. M. Frey.

TRAFFIC AND RATES.

Frisco Employes Unite in Three-Cent Passenger Rate Campaign.—Practically every employe of the Frisco Railroad has united in a campaign to impress upon the legislators the need of a three-cent passenger rate and a reasonable freight rate in the State of Missouri. In brief they want a restoration of rates.

It is proposed that all employes interview business men and manufacturers in their territory and urge them to get up petitions, or write letters to the members of the legislature, to approve a measure which will allow the railroads of Missouri to charge a three-cent passenger rate and a reasonable freight rate.

Railroad employes realize perhaps more clearly than any one the need of a restoration of freight and passenger rates.

Heavy Decrease in Anthracite Shipments.—There was a decrease of 449,315 tons in the shipments of anthracite during January, as compared with similar shipments for the same month in 1914.

Total shipments last month were 4,831,329 tons as compared with 5,280,644 tons in January, 1914, according to the Bureau of Anthracite Coal Statistics which now includes the tonnage of the Lehigh & New England Railroad. The amount of coal on hand at tidewater shipping ports increased from 669,833 tons on December 31st, to 798,125 tons on January 31st.

The Lehigh Valley led in tonnage for the month with 954,072 tons; the Philadelphia & Reading was second with 760,757 tons; and the Delaware & Hudson Co. was third with 623,947 tons. The Central Railroad of New Jersey carried 608,296 tons, the Erie 577,007 tons, the Lackawanna 575,538 tons, the Pennsylvania 451,200 tons, the New York, Ontario & Western 183,718 tons, and the Lehigh & New England 96,794 tons.

Record Shipment of Auto Trucks.—The Chicago North Western Railway recently employed a freight train of twenty-eight flat cars to transport a war order of fifty Jeffery auto trucks, which Thomas B. Jeffery Company, of Kenosha, has just filled for one of the warring nations of Europe.

The order was put through the factory in five days and the trucks were hauled to Chicago on a specially fast freight schedule via the Chicago and North Western Railway and forwarded from here via connecting line to the east. The entire time en route occupying only fifty hours and fifty-five minutes.

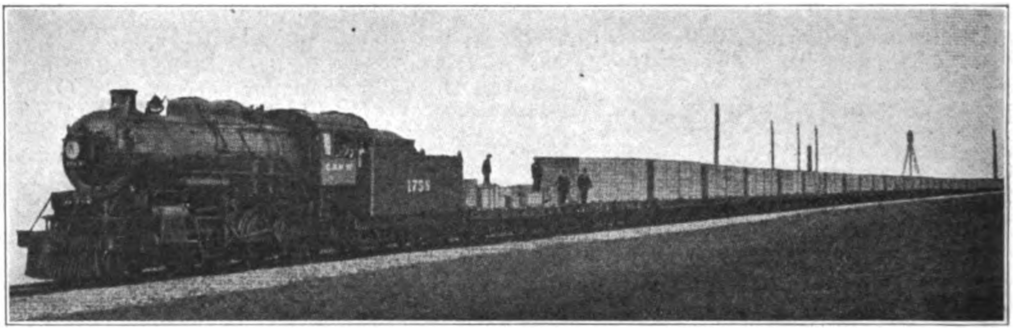
while American cotton, mineral oils, naval stores, lumber and agricultural implements are in less demand abroad than in former years, there is a greater demand in foreign countries for our breadstuffs, meats, sugar, clothing and other manufactures, especially in Europe. A citation of a few of the larger factors in our foreign trade will illustrate more clearly this fact.

December Exports of Food Stuffs.—Wheat exports in December aggregated 28,875,217 bushels, or five times the quantity in December, 1913, namely, 5,724,027. The average export price last December was $1.25 per bushel, against 93 cents in December one year earlier. Of flour the month's export movement was 68½ per cent more than in December, 1913, being 1,818,317 barrels, compared with 1,079,240 in the same month a year ago, and the value thereof was $9,473,660, compared with $4,903,223 in December, 1913.

Oats showed a larger total in December than in the entire calendar year 1913. The outward movement totaled 5,203,431 bushels in December last, against 30,798 bushels in December, 1913, and 5,202,717 in the year ending with that month.

Corn exports in December, 1914, amounted to 4,582,006 bushels valued at $3,554,592, against 749,124 bushels valued at $560,165 in December, 1913.

Fresh beef in December showed a total export of 6,594,348 pounds, against 524,430 pounds in December, 1913, and 6,618,831 in the twelve months ending with December, 1913. Pickled and salted beef doubled in quantity of exports, the December total being 2,951,080 pounds, against 1,467,743 pounds in the same month of the preceding year.



War Order of Auto Trucks Requiring a Train of Twenty-eight Flat Cars for Transportation.

Marked Improvement in Foreign Trade.—A marked improvement in our foreign trade is indicated by the latest reports issued by the Department of Commerce through its Bureau of Foreign and Domestic Commerce, sales of foodstuffs, and certain lines of manufactures having been unusually large in November, the latest period for which detailed information is at hand. In that month exports aggregated 206 million dollars, or double the total for August last, when, by reason of the outbreak of war, our foreign trade fell to the lowest level reached in many years. In December there was further improvement, the month's exports being valued at 246 million dollars, compared with 233 million in December, 1913, and within four million of the high record established in December, 1912.

An analysis of the trade figures published in the "Summary of Foreign Commerce" shows that

Improved Condition in Export Trade Manufactures.—December, 1914, exports of manufactures regained the level shown by December of the preceding year, a decrease of ten per cent in finished manufactures being more than offset by the gains in manufactured foodstuffs.

In certain lines of manufactures, however, the exports during the month of December, 1914, show phenomenal gains over those of December a year earlier, as for example, in the case of commercial automobiles, the value of which advanced from 101 thousand to 3 1-3 million dollars; cotton knit goods, from 295 thousand to over two million dollars; woolen clothing, from 183 thousand to 1 1-3 million; other woolen goods, including blankets, from 103 thousand to 2¾ million dollars, and rubber boots and shoes from 84 thousand to 864 thousand dollars.

Leather goods also made a marked advance, sole leather exports increasing from 354 thousand dollars in December, 1913, to 3 3-5 million dollars in December of last year; upper leather, from 1¾ million dollars to over 3 million; and boots and shoes from 1,254 thousand to 1,288 thousand dollars; while harness and saddles exports increased from 43 thousand to 1½ million dollars.

Zinc continues the large export movement which began during the fall of 1914. During the month of December last, 36 2-3 million pounds were exported as against only 137 thousand pounds in December a year ago. Metal-working machinery nearly doubled in value of exports, from 1,350 thousand dollars in December, 1913, to 2,432 thousand in December of last year; wire increased from 781 thousand to 951 thousand dollars; bars or rods of steel, from 777 thousand to 1,018 thousand dollars; and horseshoes, from a quarter of a million to 3¾ million pounds.

Revised Schedule of Demurrage Charges on Refrigerator Cars.—Effective February 1st, the American railroads put into effect a revised schedule of demurrage charges on refrigerator cars in which perishable freight is shipped.

The new schedule of demurrage charges on these classes of equipment allows shippers two days' free use of cars; following which there is a charge of $1.00 a day for the third, fourth and fifth days, and $3.00 a day for the sixth, seventh and eighth days that equipment is held. For the ninth day and for each additional day after that time the daily demurrage charge is $5.00.

The demurrage regulations governing the class of equipment which have been in effect have allowed two days' free use of the cars and a uniform charge of $1.00 for each additional day.

The aim of the new regulations as set forth by the railroads in announcing them to shippers is to facilitate the handling of shipments requiring refrigerator car service. The new charge has received the endorsement of the National Industrial Traffic League, whose membership is composed of the traffic managers of manufacturing and industrial plants, with a view to co-operating with the railroads in the prompt movement of traffic.

It has been recognized by railroad managers and business interests that delays to traffic have been occasioned frequently on account of shippers and consignees using cars for storage instead of loading and unloading them promptly. Where railroad equipment is used as warehouse facilities car shortages have been experienced, especially when such is the practice of large shippers and the acquiescence of the National Industrial Traffic League and National League of Commission Merchants presages a correction of such difficulty to a large extent.

Other endorsers of the new tariffs, which have been filed with the Interstate Commerce Commission and various State Commissions, are the National Poultry, Butter and Egg Association, Western Fruit Jobbers' Association, International Apple Shippers' Association, North Pacific Fruit Distributors and New York State Cold Storage Association.

Buy a Maximum Car Load.—The following circular letter issued by the Missouri, Kansas and Texas last month, is interesting in view of the increasing agitation noticeable for a fuller utilization of the railway equipment already available.

Denison, Texas, Jan. 20, 1915.

Mr. Shipper and Consignee,
Everywhere, U. S. A.

Dear Sir:

According to good authority, 1915 will be accompanied by our old friends "Confidence," "Prosperity" and "Opportunity," and it is our intention, with your assistance, to give them a rousing reception. This seems to be an assured fact as their baggage has preceded them in the shape of improvements in many ways all over the Country.

In the past few months we have heard a lot of talk about "Buy a Bale of Cotton." Many bales have been bought and much has been done throughout the South, as well as the North, to relieve the situation. It is a good work. We wish to start the slogan "Buy a Maximum Car Load" whether it be coal, lumber or whatever commodity you are dealing in.

In the Eastern Rate Case it was determined that only 58 per cent of the capacity of cars are used for tonnage that could be handled in the average car. In the West this average, no doubt, is even less.

From a Bulletin sent out by the Traffic Committee of the Lumber Association of Chicago, I quote the following:

"The importance of heavier loading is being shown more and more, particularly with the new financial difficulties with which the carriers have to contend. Increasing your loading 25 per cent per car will increase the carriers' revenue the same amount and will not increase his operating expense over 5 per cent. That makes a 20 per cent increase in earning, which is just four times as much as the 5 per cent advance asked for. Bear that in mind whenever possible and load heavily; talk heavy loading to mill men as well as customers, and soon lumber will show a big increase."

The railroads have to face (in a bigger way) the same problem that confronts all dealers who have to count on transportation as part of their business.

Imagine the fix you would be in, if you should keep on hand during normal and dull times, wagons and drivers enough to take care of rush business. How long would your income stay on the right side of the ledger.

An increase in the net weight of the car load is just as essential at a time when there is a surplus of cars as when there is a car shortage.

The Milwaukee Western Fuel Company say, when no cars are to be had—You suffer; Your Customer suffers; We suffer; The Railroads suffer.

Much is to be gained by all, by shipping and buying a "Maximum Car Load."

Yours truly,
O. C. SMITH,
Sup't. Transportation.

Heavy Increase in Ocean Rates.—Ocean freight rates on grain from United States ports on the Atlantic Coast to Europe are reaching very high figures. Rates from New York to Liverpool were up to 25 cents (1 shilling) per bushel by the second week in January, 1915; on July 30, 1914, just before the war began to affect rates, 4.7 cents pere bushel was quoted for the above route. The average from New York to Liverpool on grain was 5.9 cents in 1913, and in 1912, it reached 7.7 cents, which was the highest since 1900. From other Atlantic ports, as well as New York, grain freights are abnormally high. Full cargoes from Baltimore to Liverpool were charged as high as 30 cents per bushel in the latter part of January, 1915.

From Pacific ports, however, grain rates to Europe are actually lower than they were one year ago. This may be due partly to grain ships having been chartered before the outbreak of the war, and partly to the fact that this traffic is conducted largely by sail vessels whose charges are subject to some conditions which do not affect the steamship line traffic of the Atlantic and which may exert on the Pacific coast influences on rates which are not felt on the Atlantic coast. Up to the end of December, 1913, wheat from Oregon to the United Kingdom was charged more than 26.4 cents per bushel and occasionally as much as 26.7 cents (41 shillings and 41½ shillings, respectively, per long ton), while during the same period in 1914, rates were mostly 19 to 23 cents per bushel (30 to 36 shillings per long ton).

EQUIPMENT.

Electric Automatic Block Signals for the Southern Railway.—Contract has been let by Southern Railway and work has been started on the installation of electric automatic block signals in connection with the double track now being built between Pelham and Denim, N. C., 36 miles.

Forty-three signal towers will be erected. The signals will be operated by alternating current supplied by sub-stations at Danville and Greensboro and carried by a special transmission line. All stations and other railway buildings will be lighted by electricity.

The signals will be of the same type—upper quadrant, three position—now in use on the double track portions of the Washington-Atlanta Line. In connection with signals now in service between Danville and Pelham and between Denim and Charlotte, the installation now undertaken will give a continuous stretch between Danville and Charlotte, 141.5 miles and a total of 336.46 miles so protected of the 649 miles between Washington and Atlanta.

The force doing the work will have headquarters at Reidsville, N. C., where a storehouse for material has been established.

FOREIGN RAILWAYS.

The Simplon Tunnel.

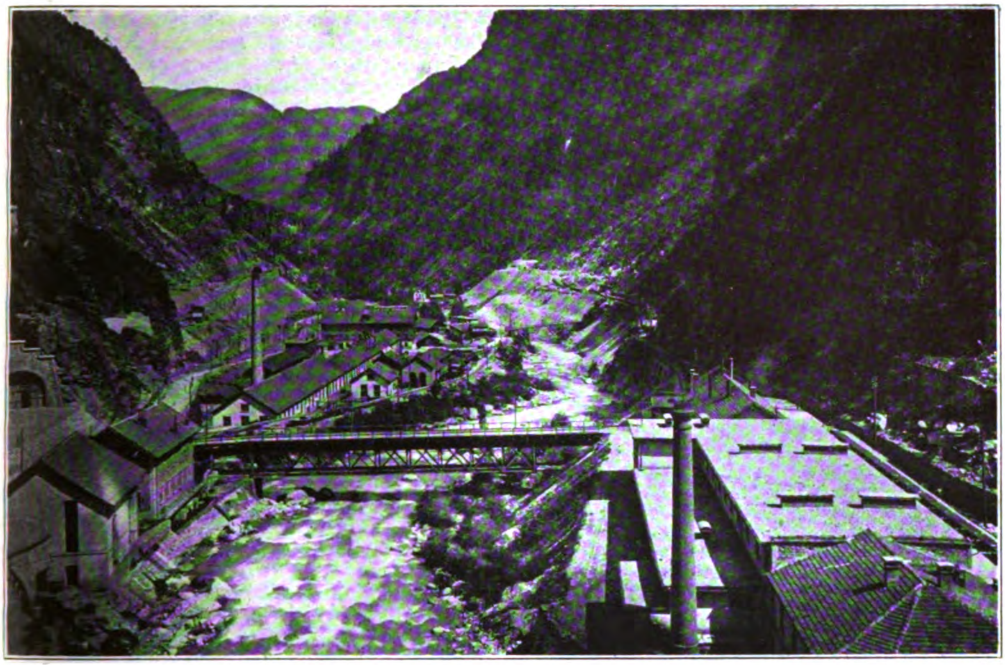
THE Simplon Tunnel is the longest not merely in Europe but in the world, its exact length, inclusive of the two short curves at either end, being 12 miles 537 yards. For about fifty years before its piercing engineers had been speculating as to the possibility of such an undertaking. By 1898 work was actually begun, and the whole tunnel was ready for traffic by May 19, 1906. The cost amounted to £2,940,000.

Showing Three Different Points in Simplon Tunnel where Water in Heavy Quantities was Encountered.

The north portal of the Simplon is about one mile from Brigue Station, in Switzerland, and the south portal about half a mile from Iselle, in Italy, the frontier being crossed in the tunnel itself, more than half of which is in Italian territory.

The Simplon is the lowest great Alpine tunnel, the highest elevation reached by it being only 2,313 feet. It was originally built with a double gallery, connected by cross shafts every 220 yards, the two galleries being 56 feet apart. One gallery alone was at first finished, and only a single track laid. The second gallery, however, will soon be completed and ready for traffic.

During the construction of the Simplon, the workmen suffered intensely from heat, owing to



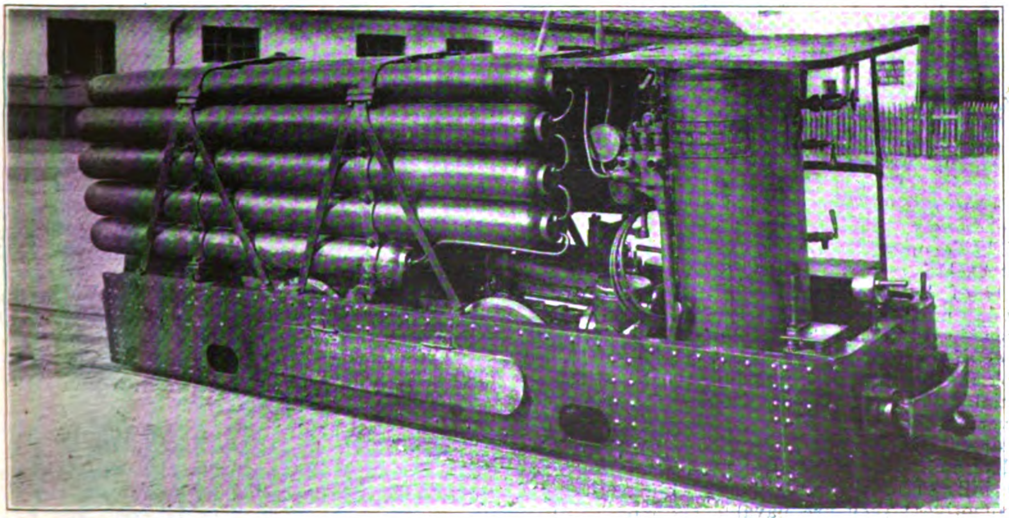
ELECTRICAL INSTALLATIONS AT ISELLE AT THE EXIT OF THE SIMPLON TUNNEL.

the number of hot springs tapped and to the temperature of the rock. The thermometer at times rose to 127 degrees Fahrenheit and the arrangements for ventillation by means of the continual introduction of fresh air proved insufficient, so that the air had to be cooled in advance of the boring party by being sprayed with icy cold water.

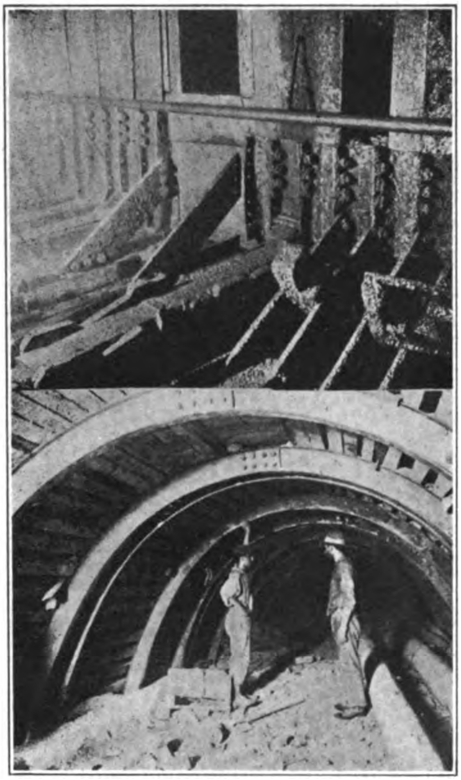
The enormous weight and stupendous pressure of the mountain overhead also caused much trouble, the pressure having been such as to distort the strongest wooden beams and warp the most solid iron supports.

During the boring of the Simplon Tunnel only forty-two lives were lost—a small number considering that it was eight years in construction, and especially small when compared with the 177 lives lost on the St. Gothard, which took nine and one-half years to build. Owing to the Simplon having been begun after considerable experience of great Alpine tunnels had been acquired, it was far more rapidly constructed than any of its predecessors. The traction in the tunnel is electric, trains taking from twenty to twenty-five minutes to pass through.

Half way through the tunnel, at a point where there are 7,000 feet of mountain overhead, a station has been built, not for passengers but for



COMPRESSED AIR LOCOMOTIVE, USED IN THE SIMPLON TUNNEL.



Two Construction Pictures of Simplon Tunnel. First Showing Employment of Strong Iron Girders and Second, the Solid Construction of the Vault of the Tunnel.

signalling purposes, two railway officials being constantly kept here. At this station, also, a slow train can be shunted on to a siding, in order to allow an express to pass. So well supplied is the Simplon Tunnel with fresh air, that the men in the central station can remain on duty for eight consecutive hours without feeling any ill effects.

Sale of American Locomotives to Greece.

A CONTRACT has recently been closed between the Greek Government and an American company for the construction of twenty locomotives and tenders for the lines of La Societe des Chemins de Fer Helleniques. The locomotives are expected to be in use by the end of 1915.

The locomotives and tenders are to cost $18,000 each f. o. b. steamer, New York. They are to be of the type known as Mikado. Delivery of the locomotives is to be made within three months from the arrival at the factory of the representatives of the Greek Government who are to overlook the construction, and the deposit of the negotiable notes at a New York or London bank covering the cost. These negotiable notes, deposit of which is to be made at once, will be delivered to the company on receipt from it of the bills of lading covering the shipment of the locomotives; they are payable six months after date, and bear interest at the rate of six per cent per annum.

Provision is made in the contract of sale for the settlement of any questions arising through the appointment of arbitrators; the third member of the arbitration board, in the event of disagreement between the parties, is to be the president of the Society of Civil Engineers of London. The contract has been ratified by royal decree.

RAILWAY PUBLICATIONS.

Lehigh Valley's Panama Exposition Folder.—A map of the United States almost entirely free of railroad lines forms an interesting part of a booklet just issued by the Lehigh Valley Railroad calling attention to its California expositions' service. But the may does show all the important tourist points touched by various routes tc the coast from the East.

"Draw your route on the map," is the suggestion made by the railroad, which offers its services to tell just what any trip will cost and how it may be made.

"It's In This Book," is the announcement on the cover which is described as "First Aid to the Fair-goer."

There is no extended description of the expositions—all of which is or will be told in newspapers and magazines—but there is definite information on how much it is going to cost to get to the Pacific Coast both from a standpoint of railroad and Pullman fares. There are full particulars regarding the interesting places one may reach en route to and from the expositions together with what these extras will cost for individuals and parties, while several model tours are outlined. Full data on the climate and the clothing necessary to take along is given with a full schedule of the hotels in San Francisco and San Diego, their size and rates.

Southern Pacific Issues California Exposition Folder.—"High Points on Four Great Highways to the California Expositions" is the title of an artistic and descriptive folder just issued by the Southern Pacific Company. It is intended for distribution in the East and Middle West. It contains seventy-eight illustrations; and not only pictures the attractions of San Francisco and San Diego with their expositions, but also discloses to the intending tourist the principal points of interest and the many scenic features on the Pacific Coast, as well as those seen en route through its four gateways via New Orleans, El Paso, Ogden and Portland.

The bold color scheme of brilliant orange, with a lighter decorative tint is strikingly effective, and the story of the wonders which the 1915 visitor may expect should induce many throughout the eastern and middle-west states to make the California trip during the present year.

A panorama of the Panama-Pacific International Exposition thirty-one inches in length and occupying the center pages, shows the entrance to the Golden Gate and depicts with unusual clearness the natural beauties surrounding the magic cities of San Francisco.

Pacific Mail Steamship Line to the Orient.—The Pacific Mail Steamship Company calls attention to its operation of American steamers carrying the American flag, between San Francisco and the Orient over the Sunshine Belt of the Pacific. The steamers Mongolia and Manchuria are 27,000 tons, Korea and Siberia 18,000 tons, the China, Nile and Persia being of somewhat smaller tonnage.

An attractively worded pamphlet is devoted to showing that the service to Japan and other ports in the Orient is unaffected by the war in Europe, and that in connection with the Panama Exposition tourists have splendid opportunities to visit the Orient and experience a restful and pleasurable ocean trip.

The steamers are stated to offer modern luxuries of ocean travel—electric fans in dining saloon and each stateroom, electric reading lights in each berth, concert each afternoon and evening by Filipino Band, games and amusements, swimming tank on deck and exceptional Cuisine. Steamers are equipped with water-tight bulkheads, bilge keels, double bottoms, submarine signal service and wireless telegraphy.

Schedule of sailings between San Francisco, Honolulu, Yokohama, Hiogo (Kobe), Nagasaki, Manila and Hong Kong, will be found in the Official Guide and also in C. & N. W. Railway's complete time table folder.

OFFICIAL PUBLICATIONS.

Change in Daily Consular and Trade Reports.—With a view to making its contents more timely, it has been decided to inaugurate certain changes in the manner of publishing the "Daily Consular and Trade Reports." The new form of publication which will be known as "Commerce Reports," will contain latest cable dispatches from the commercial attaches and commercial agents of the Department of Commerce, as well as similar information from the American Consular Service. This publication will be issued by the Bureau of Foreign and Domestic Commerce, as hitherto, and the initial number of January 2nd, contains a special announcement by Hon. William C. Redfield, Secretary of Commerce, in which he outlined the work of this very important branch of the Government service.

A new feature in the style of publication of these reports will be the issuance in the form of supplements to "Commerce Reports" of the annual reports of American consular officers, reviewing industrial, commercial, financial, and other conditions in their respective jurisdictions. These supplements will be in a convenient form for ready reference and will be mailed free of cost to all persons receiving the daily reports.

The branch offices of the Bureau of Foreign and Domestic Commerce, which are located in New York, Boston, Chicago, Atlanta, New Orleans, St. Louis, San Francisco, and Seattle will co-operate with the main office in Washington in disseminating important information received, and business houses in all sections of the country will thus be able to take prompt advantage of this special information collected from all parts of the world.

BOOK REVIEWS.

The Anthracite Coal Combination in the United States.—By Eliot Jones, Ph.D., Associated Professor of Economics, State University of Iowa. Cloth. 275 pages. Price, $1.50. Published by the Harvard University Press, Cambridge, Mass.

Beginning with a history of the origin and growth of the anthracite coal industry, the author narrates in detail the development of the combination under railroad control, and the attempts made by the Government to dissolve the hold which the railroads possess over more than ninety per cent of the entire coal area of the country. Separate treatment is given to the operations of several large railroads, which are illustrated by statistical material. This is followed by a study of freight rates, particularly as affected by decisions of the Interstate Commerce Commission, and the connection between the combination and the price of coal is investigated. Legal as well as economic problems are introduced, involving more than the ordinary complexity of the trust problem. Among these are the rights and limitations of carrying companies, and the public ownership of natural resources, which are discussed in a resume of pertinent decisions bearing on the legal status of the combination. The author makes no attempt to urge any propagandum, but presents the historical facts, with maps and charts, as a basis for impartial judgment. In making the study he has had the co-operation of men instrumental in developing the coal districts, as well as of well-known economic students.

RESIGNATIONS.

Executive.

W. D. Bliss, president, Lake Tahoe Railway & Transportation Company.

John W. Brown, president, Maryland and Pennsylvania Railroad.

D. D. Curran, president, New Orleans & Northeastern Railroad, Alabama & Vicksburg Railway and Vicksburg, Shreveport and Pacific Railway.

H. S. Julier, vice-president and general manager, American Express Company.

Daniel G. Reid, chairman, Rock Island System.

Financial.

I. C. McGee, treasurer and paymaster, Texarkana & Fort Smith Railroad.

Engineering and Mechanical.

A. B. Crook, roadmaster, Missouri, Kansas & Texas Railroad.

W. H. Kinney, master mechanic, New York, Ontario and Western Railroad.

C. Millard, engineer maintenance of way, Chicago Great Western R. R.

W. A. Van Frank, engineer, Danville Division, Chicago and Eastern Illinois Railroad.

F. G. White, signal engineer, Chicago Great Western.

Operation.

G. S. Cooke, superintendent, Winnipeg-Watrous main line division, Grand Trunk Pacific Railway.

John M. Daly, general superintendent of transportation, Illinois Central and the Yazoo and Mississippi Valley Railroads.

R. N. Hudson, general manager, Louisville & Atlantic Railroad.

J. F. Tracy, trainmaster, Northern Pacific Railway.

Traffic.

J. M. Eedson, freight claim agent, Michigan Central, the Chicago, Kalamazoo and Saginaw, the Detroit and Charlevoix and the Detroit Terminal Railroads.

H. C. Ewing, acting Pacific Coast agent, Traders' Dispatch.

H. B. Holbert, traffic manager, Muscatine North and South R. R.

Theodore W. Krein, assistant general freight and passenger agent, Fort Dodge, Des Moines and Southern Railroad.

Amos G. Manahan, special agent, operating department, New York, Philadelphia and Norfolk Railroad.

W. H. Ogborn, general freight and passenger agent, Illinois Southern.

J. T. Smith, traveling freight solicitor, Pennsylvania Lines West of Pittsburgh and Pennsylvania Railroad, Star Union Line.

Miscellaneous.

John H. Roemer, member, Railroad Commission of Wisconsin.

ELECTIONS AND APPOINTMENTS.

Executive.

E. N. Aiken, president, Passenger Traffic Club of Cincinnati.

Horace E. Andrews, director, New York Central Railroad.

Henry Bayard, director, Pennsylvania Railroad. Headquarters, Philadelphia, Pa.

Mrs. Elizabeth T. Bliss, president, Lake Tahow Railway and Transportation Company. Headquarters, San Francisco, Cal.

Louis Cabrera, president, National Railways of Mexico.

R. E. M. Cowie, vice-president and general manager, eastern department, American Express Company. Headquarters, New York.

T. De Witt Cuyler, director, Pennsylvania Company.

Ralph C. Ely, receiver, New Mexico Central Railroad. Headquarters, Deming, N. M.

Edward T. Glennon, assistant vice-president, New York Central Railroad. Headquarters, Chicago, Ill.

John P. Green, president, Delaware Railroad Company.

Albert H. Harris, vice-president, New York Central Railroad. Headquarters, New York.

R. N. Hudson, president, general manager and a director, Louisville, Henderson and St. Louis Railroad. Headquarters, Louisville, Ky.

L. A. Jones, president, New Orleans and Northeastern Railroad, Alabama & Vicksburg Railway and Vicksburg, Shreveport and Pacific Railway. Headquarters, New Orleans, La.

O. H. Nance, president, Maryland and Pennsylvania Railroad. Headquarters, Baltimore, Md.

Ira A. Place, vice-president, Law Department, New York Central Railroad. Headquarters, New York.

F. B. Sheldon, vice-president, Toledo & Ohio Central Railway and the Zanesville and Western Railway. Headquarters, Columbus, Ohio.

Colonel J. J. Slocum, president, Tennessee, Alabama & Georgia Railroad. Headquarters, New York.

T. F. Steele, vice-president and traffic manager, New Orleans and Northeastern Railroad, Alabama & Vicksburg Railway and the Vicksburg, Shreveport and Pacific Railway. Headquarters, New Orleans, La.

William K. Vanderbilt, director, Northern Ohio Railway.

J. W. Wardlaw, assistant to President and Purchasing Agent, Central Vermont Railroad. Headquarters, St. Albans, Vt.

W. A. Webb, vice-president, Missouri, Kansas and Texas Railroad. Headquarters, Dallas, Texas.

Legal.

Thomas R. Beman, general attorney, Rock Island.

Wallace T. Hughes, assistant general attorney, Rock Island Railroad.

Alexander S. Lyman, general attorney, New York Central Railroad. Headquarters, New York.

Financial.

S. H. Church, secretary, Pennsylvania Company and the Pittsburgh, Cincinnati, Chicago and St. Louis Railway. Headquarters, Pittsburgh, Pa.

C. J. Kulp, treasurer, Lehigh Valley Railroad. Headquarters, Philadelphia, Pa.

I. C. McGee, treasurer, Kansas City Southern. Headquarters, Kansas City, Mo.

J. W. Orr, comptroller, Pennsylvania Company and the Pittsburgh, Cincinnati, Chicago and St. Louis Railway.

E. C. Osborn, treasurer, Tennessee, Alabama and Georgia Railroad. Headquarters, New York.

E. L. Parker, treasurer and paymaster, Texarkana & Ft. Smith Railroad. Headquarters, Texarkana, Ark.

J. W. Renner, controller, Pennsylvania Company and the Pittsburgh, Cincinnati, Chicago & St. Louis railroads.

B. B. Young, assistant secretary, Pennsylvania Company and the Pittsburgh, Cincinnati, Chicago and St. Louis Railroad. Headquarters, Pittsburgh, Pa.

Accounting.

B. C. Hightower, auditor, Muscatine North & South Railroad. Headquarters, Muscatine, Iowa.

H. H. LeRoy, auditor, New Orleans and Northeastern, Alabama & Vicksburg and the Vicksburg, Shreveport and Pacific Railways. Headquarters, New Orleans, La.

J. M. O'Day, car accountant, Illinois Central & Yazoo and Mississippi Valley Railroad. Headquarters, Chicago, Ill.

Engineering and Mechanical.

F. J. Barry, master mechanic, New York, Ontario and Western. Headquarters, Middletown, N. Y.

D. E. Barton, acting master mechanic, Atchison, Topeka and Santa Fe Railroad. Headquarters, Argentine, Kansas.

B. F. Beckman, engineer, Fort Smith and Western and the St. Louis, El Reno and Western. Headquarters, Fort Smith, Ark.

Omar Blood, general foreman car department, New York Central Railroad. Headquarters, Sandusky, Ohio.

C. Brannon, division engineer, Chicago and Eastern Illinois Railroad. Headquarters, Evansville, Ind.

J. K. Brassill, superintendent of motive power and marine equipment, Northwestern Pacific Lines. Headquarters, Tiburon, Cal.

W. C. Burel, general foreman, Utah District, Utah-Montana Division, Oregon Short Line. Headquarters, Salt Lake City, Utah.

E. Ben Carter, chief engineer, Florida East Coast Railroad. Headquarters, St. Augustine, Fla.

J. H. Cooper, assistant supervisor, Division No. 2, Philadelphia Division, Pennsylvania Railroad. Headquarters, Paoli, Pa.

J. P. Dolan, master mechanic, Apalachicola Northern Railroad. Headquarters, Fort St. Joe, Fla.

James F. Donovan, division engineer, Lehigh Valley Railroad. Headquarters, Hazleton, Pa.

T. W. Fatherson, engineer maintenance of way, Chicago Great Western Railroad. Headquarters, Des Moines, Iowa.

J. W. Fletcher, engineer in charge of valuation, etc., Carolina and North Western Railroad. Headquarters, Chester, S. C.

E. G. Goodwin, fuel agent, Southern Railway, the Virginia and Southwestern and the Northern Alabama Railroad. Headquarters, Knoxville, Tenn.

E. E. Griest, master mechanic, Pennsylvania Lines West of Pittsburgh. Headquarters, Fort Wayne, Ind.

J. W. Hunter, division engineer, Chicago and Eastern Illinois Railroad. Headquarters, Danville, Ill.

F. T. Huston, assistant master mechanic, Pennsylvania Lines West of Pittsburgh. Headquarters, Pittsburgh, Pa.

W. H. Kellar, assistant master mechanic, Baltimore and Ohio Southwestern Railroad and the Cincinnati, Hamilton and Dayton Railway. Headquarters, Cincinnati, Ohio.

Joseph Keller, general fuel inspector, Lehigh Valley Railroad. Headquarters, South Bethlehem, Pa.

A. E. McMillan, master mechanic, Baltimore and Ohio Southwestern R. R. and the Cincinnati, Hamilton and Dayton Railway. Headquarters, Washington, Ind.

D. J. Madden, supervisor of locomotive operation, Erie Railroad, Mahoning Division. Headquarters, Cleveland, Ohio.

Traffic.

William R. Alexander, general agent, Union Pacific Railroad. Headquarters, Detroit, Mich.

W. J. Baar, traveling freight solicitor, Pennsylvania Lines West of Pittsburgh and Pennsylvania Railroad, Star Union Line. Headquarters, Portland, Oregon.

J. T. Baird, commercial agent, Seaboard Air Line. Headquarters, Oklahoma City, Okla.

J. A. Baldwin, acting superintendent, Nashville, Chattanooga and St. Louis Railroad. Headquarters, Atlanta, Ga.

F. A. Bell, assistant general freight agent, Atchison, Topeka and Santa Fe Railroad. Headquarters, San Francisco, Cal.

Peter Birrel, commercial agent, Pere Marquette Railroad. Headquarters, Detroit, Mich.

L. J. Brinkman, freight claim agent, Michigan Central, the Chicago, Kalamazoo & Saginaw, the Detroit and Charlevoix and the Detroit Terminal Railroads. Headquarters, Detroit, Mich.

R. P. Buckingham, Jr., commercial agent, Missouri, Kansas and Texas Railway. Headquarters, Waco, Texas.

R. C. Campbell, general agent, Georgia Railroad. Headquarters, Athens, Ga.

J. F. Cheney, commercial agent, Seaboard Air Line Railroad. Headquarters, Atlanta, Ga.

W. H. Cundey, assistant general passenger agent, Denver and Rio Grande, the Western Pacific, the Missouri Pacific and the St. Louis, Iron Mountain and Southern. Headquarters, Denver, Colo.

Albert K. Curts, district passenger agent, Union Pacific Railroad. Headquarters, Des Moines, Iowa.

H. V. Dinniene, acting Pacific Coast agent, Traders' Dispatch. Headquarters, San Francisco, Cal.

E. B. Duffy, commercial agent, Missouri Pacific, the St. Louis, Iron Mountain and Southern, the Denver and Rio Grande and the Western Pacific. Headquarters, Portland, Ore.

H. C. Ewing, general agent, Lehigh Valley Railroad. Headquarters, San Francisco, Cal.

W. A. Fulwiler, general agent, Seaboard Air Line Railroad. Headquarters, Tampa, Fla.

K. B. Hannigan, assistant general freight agent, Southern Railway. Headquarters, St. Louis, Mo.

B. H. Hartley, general agent, Seaboard Air Line Railroad, and the Carolina, Atlantic and Western Railroad. Headquarters, Charleston, S. C.

George P. Hood, traveling agent, Lackawanna Railroad. Headquarters, Detroit, Mich.

R. W. Hughes, soliciting freight agent, Southern Railway. Headquarters, St. Louis, Mo.

S. L. King, Jr., general agent, Wells-Fargo Express Company. Headquarters, Pittsburgh, Pa.

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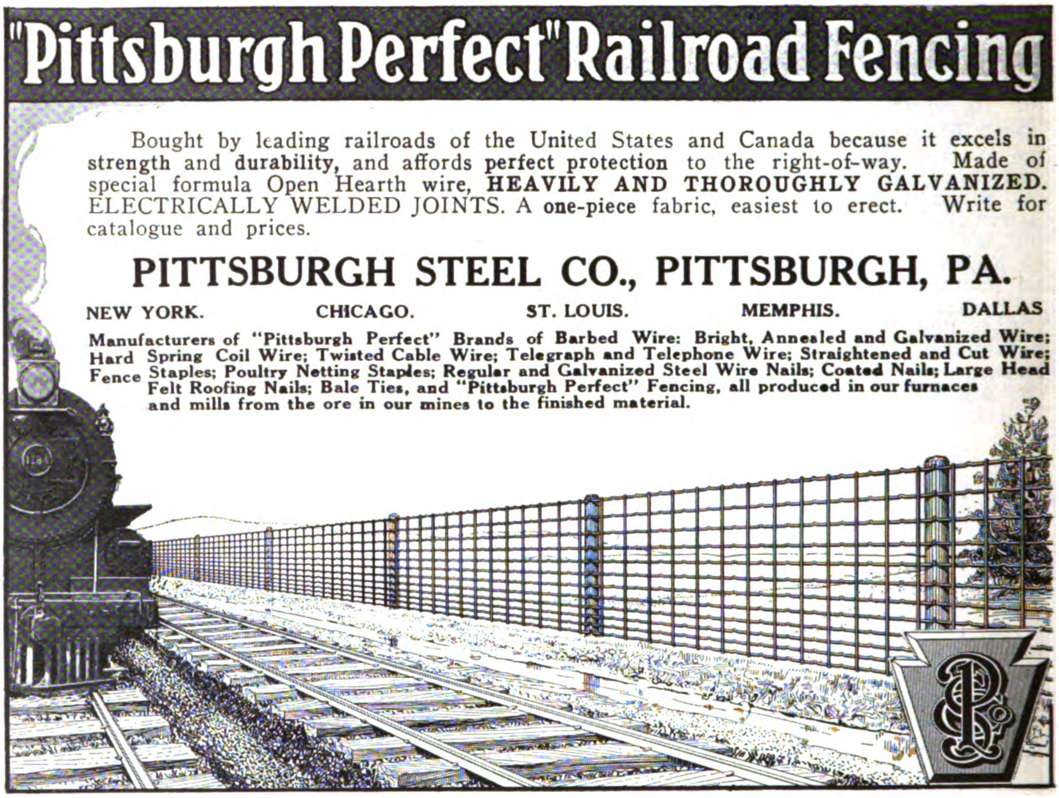

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The Western Rate Advance Case

Developments in the Western Engineers' and Firemen's Wage Movement

Progress in the Abolition of "Full Crew" Laws

A Suggested Bill to Prevent Trespassing

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Railway World

VOLUME LIX ESTABLISHED 1856 NUMBER 3

A MONTHLY JOURNAL (successor to Railway World, a weekly publication) designed to present an accurate and comprehensive review of current events pertaining to Transportation, Commerce and Finance and to afford a medium for the development of a clearer understanding of the mutuality of interest which exists between those who employ and those who operate the railways.

Publication Office: 612 Chestnut Street, Philadelphia, Pa.

NEW YORK OFFICE.
206-7 Hudson Building, 82 Broadway.

PITTSBURGH OFFICE.
504 Germania Savings Bank Building.

TELEPHONE NUMBERS.
Philadelphia .... **Walnut 228**
New York .... **Broad 6889**

Terms: $3.00 per Annum in Advance
Foreign Subscriptions: $3.50 per Annum in Advance
Single Copies: 25 Cents
Advertising Rates furnished upon application

ENTERED AT THE POST OFFICE AT PHILADELPHIA AS MAIL MATTER OF THE SECOND CLASS

EDWARD G. WARD . . . . President and Editor.
ALFRED EBERL . . . . . Secretary.

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OFFICE OF THE UNITED GAS IMPROVEMENT CO.
N. W. corner Broad and Arch Streets.
Philadelphia, March 10, 1915.

The Directors have this day declared a quarterly dividend of two per cent. ($1.00 per share), payable April 15, 1915, to stockholders of record at the close of business March 31, 1915. Checks will be mailed.

LEWIS LILLIE, Treasurer.

AMERICAN CAR AND FOUNDRY COMPANY.
New York, March 3, 1915.
PREFERRED CAPITAL STOCK
DIVIDEND NO. 64

A dividend of one and three-quarters per cent. (1¾ per cent.) on the Preferred Stock of this Company has this day been declared, payable Thursday, April 1, 1915, to stockholders of record at the close of business Thursday, March 11, 1915.

Checks will be mailed by the Guaranty Trust Company of New York.

WM. M. HAGER, Secretary.
S. S. DELANO, Treasurer.

AMERICAN CAR AND FOUNDRY COMPANY.
New York, March 3, 1915.
COMMON CAPITAL STOCK
DIVIDEND NO. 50

A dividend of one-half per cent. (½ per cent.) on the Common Stock of this Company has this day been declared, payable Thursday, April 1, 1915, to stockholders of record at the close of business Thursday, March 11, 1915.

Checks will be mailed by the Guaranty Trust Company of New York.

WM. M. HAGER, Secretary.
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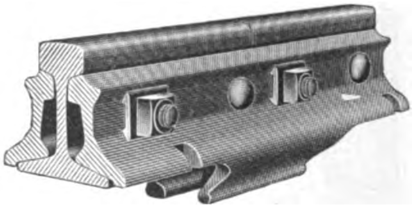

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Railway World

VOL. LIX. MARCH, 1915 No. 3

Important Developments in the Transportation Field

DEVELOPMENTS AT THE NATIONAL CAPITAL

The railroads of the country won a substantial victory from the Supreme Court of the United States in its recent decisions, in which the West Virginia two-cent passenger rate law and the North Dakota lignite coal rate law were annulled. The court decided the railroads are entitled to earn an adequate profit in the carrying of any commodity or of passengers and that a state could not insist upon a rate for one commodity or class of traffic that involved a loss or only a nominal profit and that made the railroad depend on other business to insure a reasonable return on the entire business. Justice Pitney was the only member of the court to dissent from the opinion read by Justice Hughes. When a state selects one class of traffic for regulation, the court held in its general rule, it must apportion to that class a proper part of all the general expenses and then provide a substantial compensation on the basis of the rate fixed.

Discussing the two-cent passenger rate law of West Virginia, in one of the cases, Justice Hughes said:

> It would appear to be outside the field of reasonable adjustment that the state should demand the carriage of passengers at a rate so low that it could be justified only by placing upon shippers of goods a burden of excessive charges in order to supply an adequate return for the entire service.

The decision held that such action could not be justified as a "declaration of public policy" to develop an infant industry or to make one community independent of another.

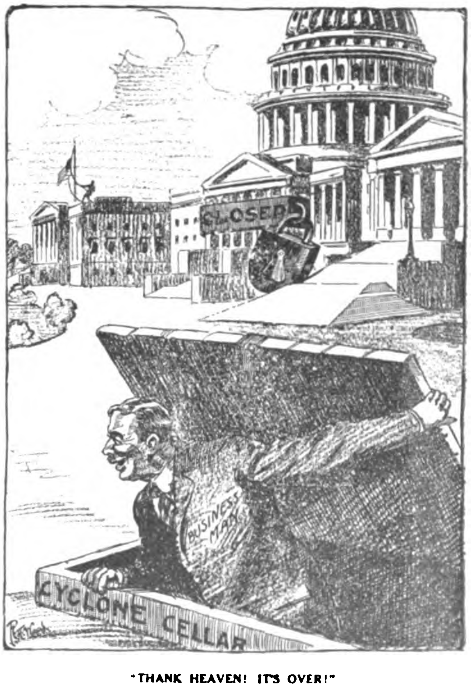
"While local interests serve as a motive for enforcing reasonable rates, it would be a very different matter to say that the state may compel the carrier to maintain a rate less than reasonable to build up a local enterprise," Justice Hughes explained. "That would be outside the carriers' undertaking and would be equivalent to an appropriation of its property to public use upon terms to which the carrier had in no way agreed. It does not aid the argument to urge that the state may permit the carrier to make good its loss by charges for other transportation. If other rates are exorbitant, they may be reduced."

In its opinion on the North Dakota law, which involved a definite rate on a specific commodity, the court remarked:

> The state cannot estimate the cost of carrying coal by throwing the expense incident to the maintenance of the roadbed and the general expenses, upon the carriage of wheat; or the cost of carrying wheat by throwing the burden of the up-keep of the property upon coal and other commodities.

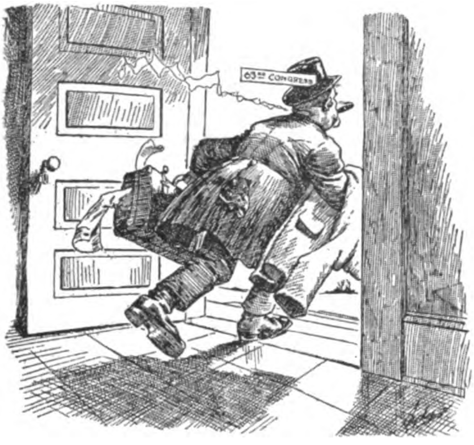
In the case of the West Virginia law, it was pointed out that the state courts had found that the net profit from the two-cent fare in a year's test was practically nothing, so far as the Norfolk and Western Railroad (the railroad in question) was concerned. But the state courts had refused to set aside the law because the railroad had not shown it did not obtain adequate returns from freight business to offset the passenger returns. This principle, of course, the highest court knocked into a cocked hat. To quote from the decision:

> The passenger traffic is one of the main departments of the company's business; it has its separate equipment, its separate organization and manage-



"THANK HEAVEN! IT'S OVER!"

From American Industries for March, 1915



One Act of Congress Which Meets With Universal Approval.
—Philadelphia Evening Ledger.

ment and of necessity its own rates. In making a reasonable adjustment of the carrier's charges, the state is under no obligation to secure the same rate of return from each of the two principal departments of business, passenger and freight, but the state may not select either of these departments for arbitrary control. Thus, it would not be contended that the state might require passengers to be carried for nothing or that it could justify such action by placing upon the shippers of goods the burden of excessive charges in order to supply an adequate return for the carrier's entire service. And on the same principle, it would also appear to be outside the field of reasonable adjustment that the state should demand the carriage of passengers at a rate so low that it would not defray the cost of their transportation, when the entire traffic under the rate was considered, or would provide only a nominal reward in addition to cost. That fact, satisfactorily proved, would be sufficient to rebut the presumption of reasonableness; and if in any case it could be said that there existed other criteria by reference to which the rate could still be supported as a reasonable one for the transportation in question, it would be necessary to cause this to appear.

It is apparent from every point of view that this record permits, that the statutory rate at most affords a very narrow margin over the cost of the traffic. It is manifestly not a case where substantial compensation is permitted and where we are asked to enter the domain of legislative discretion; nor is it one in which it is necessary to determine the value of the property employed in the intrastate business. It is clear that by the reduction in rates the company is forced to carry passengers, if not at or below cost, with merely a nominal reward considering the volume of the traffic affected. We find no basis whatever upon which the rate can be supported and it must be concluded in the light of the principles governing the regulation of rates that the state exceeded its power in imposing it.

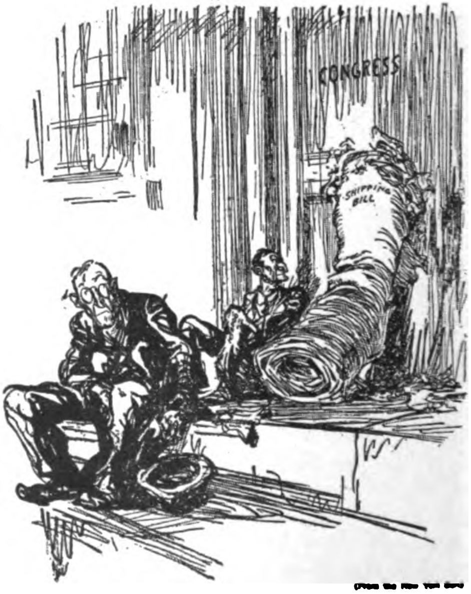
The decision will undoubtedly have a widespread effect, which will be especially felt in those states where popular anti-railroad clamor has resulted in laws for low passenger rates or for low commodity rates for classes of freight in which the people of a state are especially interested.

It will be remembered that proposals have been made in Congress, one by Congressman Roberts, of Massachusetts, a couple of years ago, that freight rates should be adjusted so that the necessities would be carried at low rates and the luxuries at high rates. This would apply the tariff principle of taxing luxuries to railroad rates, allowing the luxuries rates to provide the bulk of the railroads' income. This decision ought to be sufficient to put a damper on such proposals, although, of course, some decisions have only aroused Congress to enact laws to overcome decisions of the court.

Another score made by the railroads in the highest court of the land recently was that decision holding that the Interstate Commerce Commission did not have a right to inspect the correspondence filed of railroads. The principle was laid down in the case of the Louisville and Nashville Railroad, which was under investigation by the Commission by direction of a resolution introduced by Senator Luke Lea, of Tennessee, and passed by the Senate. The Commission desired to inspect the correspondence of the railroad to learn what, if any, political activity it had engaged in. The courts would not allow the Commission such authority of inspection.

Immediately after the decision of the court was announced, Senator Newlands, chairman of the Senate committee on interstate commerce, introduced a bill to empower the Interstate Commerce Commission

All In



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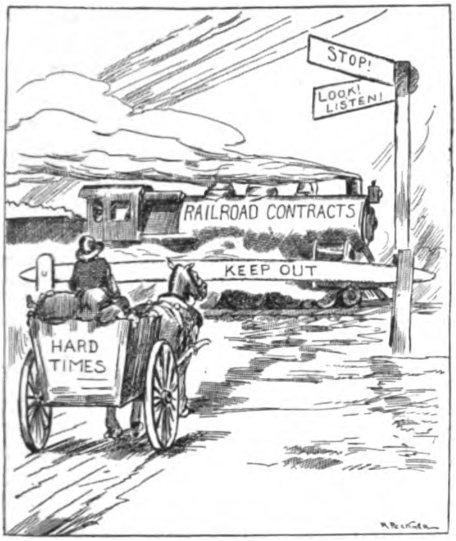


THE RIGHT OF WAY

—From *Financial America.*

to examine all papers of a common carrier, including correspondence. It was frankly designed to meet the decision of the United States Supreme Court, and Mr. Newlands made a strong effort to have it enacted, without avail.

Mr. Newlands will, it is understood, reintroduce the measure in the new Congress and his influence will be used to have it enacted into law. An exception is made, in the perfected bill, for correspondence between a railroad and its attorneys.

While the unjust and inequitable "Moon railway mail pay" proposal was defeated in the last Congress, even at the sacrifice of the entire postoffice appropriation bill, it must be remembered that John A. Moon, chairman of the House committee on postoffices, has been re-elected and will, in all probability, be chairman of the same committee on the new Congress. Mr. Moon is committed to the space-payment plan of railway mail pay, as outlined in the defeated postoffice appropriation bill; he has let it be known that he will renew his efforts at the next session of Congress to secure its passage to enable the postoffice department, in Mr. Moon's own words, to force the railroads "to carry all your parcels post probably without any additional compensation."

In fact, Mr. Moon addressed a letter to Postmaster General Burleson the day following the adjournment of Congress in which he discussed the failure of the appropriation bill and his determination to again try to force his own bill or a similar measure through the next Congress. While there will undoubtedly be sturdy opposition in the Senate, it should not be overlooked that this body will have a larger Democratic majority at the next session and that the most vigorous measures will be necessary in order to defeat the plans which Congressman Moon has in view, and which he is evidently determined to push to the utmost limit. As the postoffice appropriation bill must be passed at the next session of Congress, it is safe to predict that some change in railway mail pay legislation is to be made.

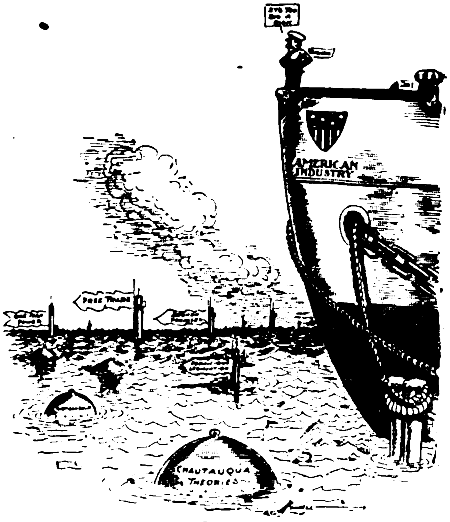
By appropriating $3,000,000 for the work of physical valuation of the railroads by the Interstate Commerce Commission, Congress has ordered that work to progress with greater speed. This will make available for the actual field work twice as much money as in the current fiscal year, which ends June 30; and the Commission has its plans to carry on the work at just twice the speed, covering about 50,000 miles of road a year, instead of 25,000 miles, as has been the rate under the old sized appropriations.

In this connection, it should be stated that the Commission has recently issued three orders calling upon the railroads for information which will be used in connection with the physical valuation of railroads.

One of the orders asks data as to "industrial tracks," tracks used in serving particular interests or industries and which the railroad has not unrestricted right to use in serving the general public.

Another requires an inventory of all documents, records, and papers that recite the

The Danger Zone



—From *St. Louis Globe Democrat.*

official acts of the corporation, and all accounts, records and memoranda that relate to the investment in or disposition of property, the issuance, retirement, purchase or exchange of securities and the syndicating banking or other financial arrangements attendant upon such transactions, income, etc.

The third requires an inventory of the quantities, units and classes or kinds of property in its roadway and track, bridges, buildings and all other structures; signals and interlockers; telegraph and telephone lines; electrical apparatus and any and all fixed property except lands.

Here is more work for the railroads and it will undoubtedly mean increased expenditures of no small amount to make the proper returns under these orders, at this period of retrenchment and low gross earnings. The railroads must grin and bear it, however.

Strange as it may appear, a law which was enacted in the closing hours of the last Congress apparently gives the railroads authority to increase their rates 10 per cent. The law in question is what is known as the "full valuation act" and makes it unlawful for a railroad to restrict its liability in case of loss or damage to shipments. It was pressed by Senator Cummins, of Iowa, in the Senate and by Representative Towner, of Iowa, in the House, and was especially urged by live stock shippers, who maintained that under the terms of the uniform bill of lading now in use, they did not get a fair claim payment in case the live stock was killed en route on the railroad. It was opposed by the railroads.

It is, of course, well known that the published rates of the carriers contain a proviso that the rates are applicable only in case the shipper accepts the terms of the carriers' uniform bill of lading.

The bill of lading contains certain limitations on the carriers' liability, to which most shippers have no objection, and that bill of lading has been used in about 99 per cent of all shipments. It was recommended four years ago by the Interstate Commerce Commission and adopted by all the railroads without objection.

Tariffs on file with the Interstate Commerce Commission specify that if the shipper objects to the terms of the uniform bill of lading and insists that the carrier accept full liability as imposed by statute law, the carrier shall accept the shipment and increase the rate 10 per cent over that charged under the uniform bill of lading.

The bill which was passed in the closing hours of the last Congress, and is now law, forbids the carriers to restrict its liability in any way and specifically declares that any bill of lading or tariff on file with the Interstate Commerce Commission attempting to limit the liability is void and of no effect. At the time the bill was under consideration, it was pointed out that the carriers, under its provisions, could not accept shipments under the uniform bill of lading and would be obliged, under the published tariffs, to assess the 10 per cent penalty which the tariffs prescribe under the unlimited liability.

The new law is effective 90 days after its passage, which would be June 4. In the meantime, the experts of the Interstate Commerce Commission will have an opportunity to make a study of the effect of the law and to take some action toward an investigation of the reasonableness of the increase, in case that is thought necessary. Members of the Commission are awaiting some announcement from the railroads as to what they intend to do. It is true that should the railroads announce the increase of 10 per cent shippers would pour their complaints in to the Commission and it would take some quick action that would lead to a thorough investigation of the raise, probably suspending the increases until the inquiry was completed.

It is hardly anticipated that the carriers will make an effort to take full advantage of the new situation created by the passage of this law. While they cannot be expected to carry goods upon which there is no liability restriction, at the same rate charged under a restricted liability, it is nevertheless believed that the whole question is one which will be subjected to a reasonable compromise and an adjustment made which will receive the endorsement of the Interstate Commerce Commission.

Secretary Lane, of the Interior Department, has submitted to President Wilson the report of the Alaskan Engineering Commission on surveys made of different proposed routes for the Government Alaskan railroad which will be begun this spring for the development of the interior of that territory. Negotiations are under way with the owners of Cooper River and Northwestern and the Alaskan Northern railroads to determine which, if either, shall be bought by the Government to be used as a link in the Government line. The Cooper River road is controlled by the Morgan and Guggenheim interests.

The principal question to be determined by the President, according to Secretary Lane, is whether the railroad shall run to the west or the east of Prince William Sound. Back of the question is another question as to which section of the coal lands of Alaska it is thought best to develop at this time and on the cost of construction and maintenance of the two proposed routes. The Government Commission is preparing final figures which are to aid the President in making his decision, which is expected soon.

This project of an Alaskan railroad has been hailed as marking a radical departure in the policy of the Federal Government as to government ownership of public utilities. After all, the Government has gone previously into the railroad business, operating for some years the Panama Railroad, which crosses the Isthmus of Panama from Colon to Panama. It must be admitted that the cases are not parallel, for the Isthmian railroad was purchased chiefly because of its use in the construction of the Panama Canal and not because of the traffic it would carry or the trade it would develop. The Alaskan railroad has been favored because of the trade development it would create. It is an experiment which will be watched with interest.

The Interstate Commerce Commission has pronounced unreasonable proposals of the railroads to exclude from regular baggage service pentagonal trunks.

CLOSING OF SIXTY-THIRD CONGRESS

After two years of almost continuous session, the Sixty-third Congress of the United States which revised the tariff and the currency system of the nation, supplemented the trust laws and created an income tax, came to an end at noon on March fourth.

While it is understood that no extra session of Congress will be called, at least before the fall, it appears to be regarded as extremely probable by many that the Sixty-fourth Congress will be summoned in October, to enable it to adjourn for the political conventions and National campaign of 1916.

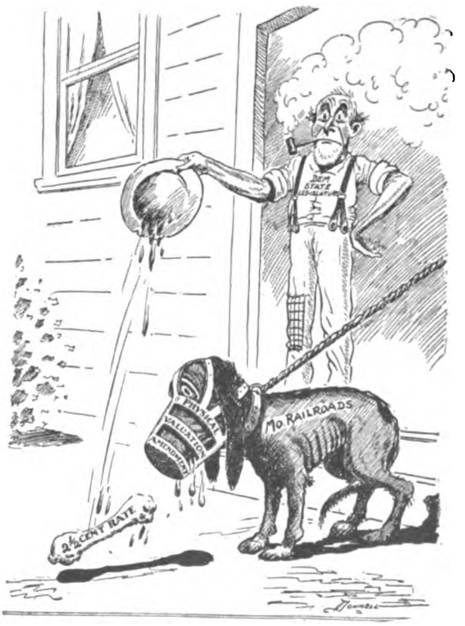
The closing weeks of the Sixty-third Congress were largely notable on account of the failure to pass certain Administration measures which had attracted the general attention of the country. Two important measures, the postoffice and Indian supply bills, failed in the final legislative crush after desperate efforts by their Democratic advocates to save them. In the emergency occasioned by their failure, joint resolutions were passed and signed by the President, continuing in force appropriations of this year. Measures that finally failed of passage included the ship purchase bill, Philippine independence bill, rural credits, child labor, immigration, conservation bills, National prohibition and woman suffrage.

In standing firmly against the passage of Representative Moon's confiscatory railway mail pay rider in the postoffice appropriation bill, the Senate, during the last hours of Congress, performed a notable act of justice.

It was, of course, regrettable that the appropriation bill itself, failed and that Congress was compelled to face the alternative of an extra session or the eleventh hour adoption of an emergency resolution to provide the Post Office Department with working funds after July 1st. That situation, however, was due solely to the refusal of Mr. Moon and his associates to withdraw the rider even after it had become plainly evident that they could not succeed in forcing its passage.

The Moon rider would have made the Postmaster General sole dictator of what the railroads would be paid for mail trans-

"Enjoy Yerself. Consarn Ye."



—From *St. Louis Globe Democrat.*

portation. It would have enabled the Post Office Department, in Representative Moon's own words, to force the railroads "to carry all your parcels post probably without any additional compensation."

With his obviously unjust measure now out of the way, the new Congress, which will assemble next fall, can proceed in a sane and orderly manner to provide the railroads their long-delayed fair payment for carrying the parcels post.

The injustice of the Moon plan to settle the postal deficit upon the railroads is emphasized by the fact that the joint committee of Congress, especially appointed to investigate the question of railway mail pay, reported only last summer, after two years of study, that in all fairness the compensation of the railroads should be increased and not diminished.

That the postoffice bill—the most important of all the appropriation measures, carrying $325,000,000—failed of passage, thus necessitating emergency legislation in the last moments of the session, is due solely to the refusal of Representative Moon and his associates to permit the withdrawal of the "rider" after it had become perfectly clear that the Senate would not be a party to confiscation.

In consequence of Chairman Moon's unyielding attitude, a situation has been created which has not been paralleled in a generation and which may unfortunately hamper the operations of the Post Office Department in the coming fiscal year.

Since the failure of the postal appropriation bill and the adjournment of Congress, Chairman Moon has made two public assertions that should not go unanswered.

1. Chairman Moon is quoted in a newspaper interview as saying that it cost the Government $600,000 to obtain the information upon which his "rider" was based.

The facts are, as the Second Assistant Postmaster General, Mr. Joseph Stewart, testified under oath in the hearings before the Joint Congressional Committee on Railway Mail Pay, that the Post Office Department spent $19,423.20, out of an appropriation of $20,000, in obtaining the information referred to by Mr. Moon. In addition, the Congressional committee, itself, spent $6,560.50 out of an appropriation of $25,000.

Thus the total cost to the Government of this entire inquiry, of which the Moon "rider" was only one of several results, was $25,983.70, instead of $600,000, as Mr. Moon declared.

The labor of compiling the information, as a matter of fact, fell almost entirely upon the railroads. The statistical and clerical work necessary to furnish the figures which the Post Office Department called for was enormous.

The expense to the railroads approximated a quarter of a million dollars, or about ten times what the inquiry cost the Government.

2. In his letter to Postmaster General Burleson, regarding the failure of the Post Office Appropriation bill, Chairman Moon said:

"The railroads are charging the Government twice as much as they charge the express companies."

This extravagant and many-times refuted assertion was made in the face of the Joint Congressional Committee's authoritative finding on the subject.

The committee, in its report to Congress, found that "the express service undoubtedly costs the railroads less than the mail per car mile," and that the complete evidence showed the mail earnings of the railroads to be decidedly lower than from express on a car mile basis, which is the best basis for comparison we have."

The committee said:

"We are compelled to reject the Post Office Department's attempt to show higher relative earnings from mail as reckless and misleading."

Later, the report added:

"Certainly there is no warrant in the oft-repeated assertion that the Government is being robbed in its mail payments by comparison with what the express companies pay. There has been an amazing amount of reckless assertion on this subject."

It seems but just to say that the Joint Congressional Committee on Railway Mail Pay througout its entire inquiry, gave the railroads, as well as the Post Office Department, full and fair opportunity to be heard, and that the Senate Post Office Committee accorded the railroads an equally impartial hearing.

The judicial attitude of these two committees stands out in sharp contrast to that of the House Post Office Committee, which, under the chairmanship of Representative Moon, refused to hear the railroads at all.

Chairman Moon's committee even tried to rush its measure through Congress before the Joint Congressional Committee had time to report.

In the hearings before the Senate Post Office Committee ample proof was given that passage of the Moon bill would force all of the railroads to carry the mails at a heavy loss, and that in the case of some of the smaller roads it would mean financial ruin.

The public has given every indication that such an outcome would be received with anything but enthusiasm.

The press of the country has with practical unanimity advocated fair play for the railroads in the matter of compensation for carrying the mails, especially since the parcel post has so greatly increased their burdens.

The American people, it is quite evident, like to pay their just debts, and resent being shown how to repudiate them. This sentiment has been reflected with remarkable clearness in the attitude of the newspapers towards the railway mail pay controversy. Many Boards of Trade, Chambers of Commerce and other organizations of business men throughout the country have after most careful study of the subject, condemned the Moon bill, or "rider," as unjust, arbitrary and confiscatory, and have urged Congress not only to reject that measure, but to take affirmative action toward remedying the long standing underpayment of the railroads for carrying the mails and the parcel post.

As stated elsewhere, Congressman Moon despite the outcome of his recent efforts, resulting in the failure of the post office appropriation bill, has announced that he intends to introduce his railway mail pay measure again, presumably in the next Congress.

The railroads, however, are prepared to stand pat on their original recommendations which are as follows:

1. That the present law be retained, but reinforced by requiring an annual and simultaneous weighing of the mail on all railroads for a period of not less than 35 days, with readjustment of the pay accordingly.
2. That the apartment post office cars be paid for on a pro rata basis of the payments for the full post office cars.
3. That the Post Office Department be required to carry the mails between railroad stations and post offices—a service which is no part of the duty of railroad transportation.

The Committee on Railway Mail Pay has done a remarkably effective service in bringing the facts regarding the controversy before the general public, but it should be the effort of all railroad officials during the coming months to bring these facts to the attention of the members of the next Congress and others interested in fair dealing, to the end that a proper and permanent settlement of the question of railway mail pay may be obtained.

THE WESTERN ADVANCE RATE CASE

The Western roads are developing an unusually strong case in their plea to be permitted to increase their freight rates sufficiently to offset the constantly increasing cost of operation which has been characteristic of railway developments during the past few years.

In its general aspects, the plea of the Western roads bears a strong similarity to the case of the Eastern railroads in which the Interstate Commerce Commission finally granted an advance of approximately five per cent on a part of the traffic involved. To quote from a recent editorial in the *Wall Street Journal*:

> In a word, the rise in operating expenses and taxes has so reduced the return on invested capital that the railroads in that section, as a whole, can no longer command the funds they need to keep pace with the agricultural and industrial development of their territory.
>
> Assuming the correctness of the statistical exhibits which the Western roads have compiled from their own sworn statements to the Interstate Commerce Commission, their gross earnings increased from $449,000,000 in 1901 to $912,000,000 in 1914, or more than 100 per cent. Operating expenses increased in the same time from $287,000,000 to $669,000,000 or about 133 per cent. Taxes rose from $14,400,000 to $42,000,000, or about 191 per cent. Expenses and taxes deducted from gross earnings, there remained $148,000,000 of net operating income in 1901 and $201,000,000 in 1914. This item increased but 36 per cent. Rentals of leased roads, which must be deducted before figuring the return on the investment of the petitioning carriers, increased about $3,000,000 in the period, so that the net income or capital return becomes $143,000,000 for 1901 and $193,000,000 for 1914, a difference of 35 per cent.
>
> If the investment of these roads had remained to the present time just what it was in 1901 the rate of return on capital would have increased from 4.76 per cent in 1901 to 6.42 per cent. It may well be questioned whether any purely private industry would have been satisfied with that increase in capital returns in view of the so much greater increase in the volume of business handled, but as quasi-public institutions these railroads would have had to be content. Indeed,

they would have been extremely lucky if any such increasing returns had been possible.

But the fact is that the cost of their road and equipment, as stated on the books, rose from $3,003,000,000 in 1901 to$5,078,000,000 in 1914 an increase of 69 per cent. Whereas in 1901 the capital employed made a return (not the return actually paid out to creditors and owners) of 4.76 per cent, in 1914 the greatly augmented investment showed a return of 3.80 per cent. No one would seriously dispute the obvious fact that such a rate of return does not command the confidence of investors who are asked to provide additional capital.

This is, of course, only the bare outline of the case. Many important details remain to be filled in by the petitioning carriers and rigidly scrutinized by the Commission and the interested public. It may be said now, however, that there is ample reason for believing that the Western roads will support their plea of non-compensatory rates as successfully as did the Eastern carriers.

In presenting testimony, somewhat different methods are being pursued by the Western roads, than were employed by the railroads in the East. For example, all the interested roads are standing by one set of statistical exhibits that have been compiled by many experts under the direction of a public accountant who is specially employed. for that purpose. Furthermore, General Solicitor Wright, of the North Western road, is acting as chief counsel for all lines, which differs essentially from the methods employed in previous cases, where cross-examinations were conducted by attorneys for the railroads whose executive and other officers testified. In this way a certain duplication of evidence has been avoided, as has undue controversy caused from confusion arising from adverse methods.

Among the officials who have thus far testified are C. E. Perkins, freight traffic manager of the Missouri Pacific; E. P. Eyman, assistant traffic manager of the Chicago and North Western; Judge J. W. Lusk, receiver of the St. Louis and San Francisco; E. B. Boyd, chairman of the Western Trunk Line Committee; B. F. Bush, president of the Missouri Pacific; F. A. Leland, chairman of the Southwestern Tariff Committee; C. E. Schaff, president of the Missouri, Kansas and Texas; S. M. Felton, president of the Chicago Great Western; F. J. Wade, president of the Mercantile Trust Company, of St. Louis; L. E. Wettling, statistician for the railways, and C. C. Wright, of the North Western, who, as above stated, has been appointed chief counsel for all lines.

The testimony of these men is taking the form of a composite of railway conditions in the West, of a most convincing and comprehensive character. From the list of those who have so far testified, it will be seen that the properties generally represented are among the so-called weaker roads. The North Western has been conspicuous so far only in the conduct of the case, while other strong roads like the Burlington, have kept in the background. The Union Pacific has not, as yet, been a party to the proceedings.

Another notable difference between this and the original case, is the fact that opposition from shippers is comparatively feeble. There has apparently been a strong public sentiment developed in favor of the carriers by their candid publicity campaign of the past two or three years. In this way, what was once a grave liability has become one of their most promising assets, if it can be retained.

Organized resistance is coming largely from the State Railroad Commissioners' delegation, headed by Clifford Thorne, of Ohio, who it is understood also represents several organizations of shippers privately It is hardly necessary to remind our readers that he was conspicuous in the original case and later in the Eastern case. While these commissioners appear to form a solid, unyielding whole, their influence may not be expected to play as important a part in these proceedings as in similar ones.

The increases sought effect largely commodity rates covering articles of general consumption and do not include any general advance. While the roads deemed it expedient to include passenger rates, in the issue, acting under suggestions from the recommendations made by the Interstate Commerce Commission in the Eastern case, they have apparently been unable to join the two in the present case. It is understood that the passenger case will come up later.

According to statements made before the Commission, the freight rate advances asked for, will aggregate only about $10,000,000, or about 1½ per cent of the last fiscal year's freight revenue. The commodities included are grain and grain products, live stock, fresh meats and packing house products, coal, hay, fruits and vegetables and cotton piece goods. The hearing also involves the propriety of eliminating certain privileges prevailing in parts of the territory relating to stoppage in transit and storage. Each commodity is treated separately with a view of establishing a more equitable record of rates by advancing those which are too low.

The roads involved number forty-one, with a combined mileage of over 98,000 miles, so that if the increases are granted and the entire $10,000,000 of additional income procured, it will mean but little more than $100 per mile per year. It is confidentially believed by the interested carriers that the showing to be made will demonstrate that the roads in Western territory are in need of additional revenue to maintain proper, efficient and safe service demanded by the public and at the same time enable them to receive such fair return on the value of their properties as to sustain their credit and meet the public's demands for increased facilities and service.

How important the case appears to the financial interests of the country is well set forth in the testimony of Festus J. Wade, president of the Mercantile Trust Company, of St. Louis, who, on March 5th, testified, in part, as follows:

> This meeting to consider an increase of rates for Western railways to my mind is the most important called in Chicago, in Illinois or in the United States in the last twenty years, for the weal or woe of this nation.
>
> There is no class of trade or commerce whose securities have depreciated as much or are harder to sell than are railroad securities in the United States. For the last few years, we, in connection with other investors in railroad securities, have been obliged to turn elsewhere on account of the uncertainty and unreliability of these securities as an investment or to buy for sale again to others.
>
> You hear a great deal about depression. Some blame the war and others the tariff, currency law or other causes, but if you are a student of economic conditions of this nation, you will be forced to the conclusion that the constant tirade against railways of this country has operated to discredit them in the eyes of the investing public and to make investors put their money elsewhere.
>
> Years ago it was common for bankers to put their subsidiary reserves in railroad securities. They had an international market. You could spend 30 cents for a telegram to New York and in twenty-four hours have your money. It took only the panic of 1907 to disillusion the bankers. It was then that the various state commissions started to tell railway managers how to conduct their properties, how they should be financed, how their rates should be decreased and how they should better their service to the public.
>
> Depreciated credit retards development of railroads. There has been practically no building going on during the last two years. It is practically impossible to finance a railroad. The decrease in market value of railroad securities from 1906 to 1914 was 20 per cent. This equals $3,000,000,000, or 75 per cent of the combined capital of all the banks and trust companies, state and national, in the United States.
>
> Never in the history of the nation has there been so much idle money as there is to-day. Wholesale merchants are paying from 4 per cent to 4½ per cent. Large industrials whose credit is good are being besieged to borrow at 4 per cent. In three months the Federal reserve banks have not been able to lend enough to pay their operating expenses. There are $250,000,000 lying idle in their vaults in New York to-day.
>
> We cannot market any short term paper at this rate. The market for railroad securities is nil, for the small investor is scared. Savings banks have lost in nine years more than $250,000,000 by depreciation in railroad securities and life and fire insurance companies have charged off more than $100,000,000 because of depreciation in railway securities. If you tried to sell them any more, there would be an emphatic refusal.
>
> There is an addition of from 50 per cent to 75 per cent in the rate asked for money advanced to railways as against manufacturers and mercantile concerns. I have been forced to put money into real estate because I have more railroad securities now than I want, and what I have I cannot get rid of. I attribute it more to reduction in rates and restrictive orders than to any other condition.
>
> The railways of the United States represent 25 per cent of the commerce of the United States, and when you curtail that immense purchasing power, you throw out of employment an army of men and women—23 per cent of all the men and women of the United States depend upon the railways for existence. When you deplete the purchasing power of that great artery of commerce you throw thousands out of employment.

PROGRESS IN THE WESTERN ENGINEERS' AND FIREMENS' WAGE MOVEMENT

The Federal Board of Arbitration which has been hearing arguments at Chicago, on the $41,000,000 wage demand of Western engineers and firemen, has practically completed the taking of direct testimony.

It would appear impossible that the result will be anything but a sweeping defeat for the men. Not only have they failed to justify their contentions, either for the necessity of an increase or the ability of the Western roads to pay it, but a large amount of their testimony has been so evidently colored and distorted to produce a favorable impression upon the minds of the arbitrators, that never before, in a controversy of this character, has any labor organization been so thoroughly discredited. Every point advanced by the men has been answered in detail by the carriers, and so fair and frank have been these answers, that a complete victory for the lines, is freely predicted.

As a matter of fact, the hearing had proceeded only a short time when it became clearly apparent that the men could have chosen no worse time in which to press their demands. Thousands of men have been laid off in the railway service, owing to decrease in tonnage and falling revenues, while the general business outlook offers little encouragement for the resumption of any immediate or general prosperity.

The really desperate straights of the carriers have been made manifest not only in the recent decision of the Interstate Commerce Commission granting the Eastern roads an increase in freight rates, but also through the very disquieting testimony which the Western roads have been recently offering before that same body in their effort also to be permitted to increase their rates.

In spite of these conditions, for the Western engineers and firemen to demand an increase in wages, shows an arbitrary attitude on the part of labor organizations, at which the country may well stand aghast. The hearings have clearly brought out the fact that not only are engineers and firemen far better paid than labor of a similar character in any other industry, but the increases which have already been granted these men within the past few years, have far out-stripped any possible increase in the cost of living, so that to-day they occupy a preferred position in relation to practically all other similar activities in commercial and industrial pursuits.

Furthermore, the testimony of the railway experts, proved beyond question, that labor-saving devices, which have been installed within the past few years, have tended rather to decrease than increase the labors and responsibilities of individual men engaged in this branch of the service, and that large numbers of them were able to secure most remarkable incomes, some considerably above the $3,000 mark, while working short days and indulging in lay-offs, which would prove impossible in any other business.

The defeat of the men appears inevitable. While the Board may find it necessary to recommend an adjustment of certain rules and regulations, it would be impossible to conceive an economic injustice to the rest of the country more severe than to permit any increases in wages at the present time. Eventually it would have to come out of the pockets of the people, and the Arbitration Board is fully as well aware of this fact as are the railway managers. Instead of proving their case, the men have by their own testimony, clearly demonstrated that they are, at present, in a definitely preferred class compared with all other branches of American labor.

PROGRESS IN THE ABOLITION OF "FULL CREW" LAWS

Eastern railroads continue with vigor their campaign for the abolition of the "full crew" laws in the states of New York, Pennsylvania and New Jersey. Even before the beginning of this campaign, there had been manifest a growing opposition to these laws as their effect and wastefulness became more apparent to the general public.

Not long ago, so little was known of the railway industry, and its problems, that the passage of such laws would have been looked upon largely as a penalty which the carriers generally richly deserved. However, recent publicity campaigns have been driving home to the conscience of the average citizen that unfair economic conditions arbitrarily thrust upon the roads must eventually be met through a greater tax upon the resources of the average individual.

Full crew laws and other measures of a similar character, are now receiving a closer and more intelligent scrutiny with the result that it is not nearly so difficult to arouse a widespread public antagonism to a law, when it can be clearly shown to be detrimental not only to the service, but, in the last analysis, to the public served.

The fruits of the carriers' efforts to abolish these laws are already beginning to appear, and in New York a bill has been reported favorable by the Public Service Committee of the State Senate for the repeal of the "full crew" law of that state. A caucus of Republican Senators has also approved the repeal of this law. The bill approved by the conference is known as the Spring-Conkling bill, and it provides that the regulations of the train crews in the future shall be part of the duties of the Public Service Commission.

In the meantime, the results of the campaign are becoming more apparent daily. Editorials by the score are being published, vigorously upholding the stand of the carriers. Various trade and commercial organizations are sending petitions to their respective state legislatures, while petitions, which are being forwarded to the same quarters are being signed by thousands of citizens in all walks of life. Some of the railroad presidents are appealing to their stockholders to assist in the promotion of this campaign, and the result of these concerted efforts is bringing a tremendous pressure to bear upon the legislatures of the states involved.

Profiting from past experiences, the railroads are conducting their case in such a manner as to appeal directly to the understanding and sense of justness of the average man. For example, it is pointed out that the $2,000,000 a year now paid in wages to the superfluous brakeman by the railroads of Pennsylvania and New Jersey, would purchase eighty locomotives, which would give employment for a year to 1,745 men. Of these 894 would be in the locomotive shops and the balance would get employment in steel mills and iron furnaces and brass foundries, in mining coal and manufacturing coke, in mining iron and in other lines of activities.

It is similarly shown that if this $2,000,000 was expended in the purchase of freight cars or new passenger equipment, a large amount of legitimate and productive work would likewise be furnished to men who are now idle through stress of circumstances. In other words, any such use of the $2,000,000 now an economic waste as used in the hire of men forced upon the railroads by edict of law, but for whom there is no near service, would turn the $2,000,000 a year so wasted, to useful purposes, give productive work to men now idle, and as they receive and expend the money, would stimulate industrial and business activities in hundreds of other directions. It is hardly necessary to say that an argument of this character appeals most convincingly to the average business man and the results are shown in the tremendous sentiment which has been aroused in favor of the repeal of these laws.

The railroads have employed only the frankest methods in bringing these matters to the attention of the general public. They point out, however, that for more than three years a full crew law has been in operation in Pennsylvania and for nearly two years, in New Jersey. During this lengthy trial they failed to improve the service in any particular. How detrimental has been their effect, is shown in the following summary recently published by the interested carriers:

1. They have arbitrarily put on thousands of passenger and freight trains extra men for whose presence there is no need.
2. They have created employment without real service going with it.
3. In this way they have worked violence to economic laws and forced waste into railroad operation.
4. They have added to the expense of railroad operation in Pennsylvania and New Jersey more than $2,000,000 a year.
5. Such huge amount of money has consequently been diverted to an unnecessary purpose from expenditure upon increased railroad facilities and better service.
6. These laws have worked to public hurt and have added a burden to the public which the people are not fairly called upon to stand.
7. They have put organized labor in the false and untenable position of demanding employment by edict of law.
8. They have worked to foist upon the backs of the whole body of railroad employes thousands of men who draw pay, but for whom there exists no essential service to perform.
9. In general and in particular, these laws have shouldered upon the railroads an unnecessary operating expense to the cost of an army of stockholders, most of whom have their savings so invested and are largely dependent upon the income received from dividends.

Definitely and finally to give public notice that the railroads ask only a square deal all around in this matter, and to state their position at the very outset, the presidents of the Pennsylvania Railroad Company, Philadelphia and Reading Railway Company and Baltimore and Ohio Railroad Company, in announcing on February 9 that the railroads intended to work for repeal of the full crew laws, pledged themselves as follows:

> Let us add that if there shall be evidence that without such laws the railroads would under-man trains, to the hardship of employes or the detriment or danger to the public, that, assuming the present public service acts do not give to the commissions ample powers to determine what crews are necessary on different trains and to compel the railroads to man trains as ordered, we will openly support such amendments to the present acts as may be necessary to give such assurance.

PROGRESS IN VALUATION WORK

Charles A. Prouty, formerly of the Interstate Commerce Commission, and now in charge of physical valuation, made a statement recently before the Congressional Appropriations Committee, which constitutes the latest and most authentic account of what is being done by the official valuers to complete the work.

According to Mr. Prouty's statement, work is going on to-day at the rate of approximately $2,000,000 annually, but more rapid development is now called for. Out of the $2,000,000 annually thus far employed, over $500,000 was applied to what may be called overhead expense, the balance being for field work. About 20,000 to 25,000 miles of lines per annum are being examined at present, and it is the desire to enlarge this to 50,000 miles.

Mr. Prouty pointed out that the field expense does not call for increased overhead charges in proportion as its scope is enlarged and that therefore more stress should be placed upon the field work and a larger proportion made available to enlarge it. If those engaged in the valuation of the railroads, could enlarge the field work to 50,000 miles a year it is estimated that the entire work would be finished in four years from July 1, 1915. At present, eight parties are in the field doing the work in each of five districts in which the country is divided, or forty parties in all. With this staff, about 2,000 miles a month, or 24,000 miles per annum can be covered.

Some interesting deductions can be drawn from Mr. Prouty's figures. Assuming that there are 250,000 miles of track in the United States, and that the cost of valuation at the rate of 24,000 miles a year, is $2,000,000, the total cost would be something like $21,000,000. This is a distinctly favorable estimate, however, as the forty field parties have thus far reported a maximum of 1,800 miles in a month, and although it is the belief that they may increase this to 2,000 miles after becoming more familiar with their work, the estimate of $21,000,000 is nevertheless, considered extremely conservative and has not yet been justified by actual services performed.

There is another method of figuring based on Mr. Prouty's evidence. He says that of the $2,000,000 annual outlay $500,000 is overhead expense, which does not change very much. Assuming that the task could be finished within four years from next July, the total overhead from beginning to end would thus be about $2,500,000. If $1,500,000 represents field work for 24,000 miles then about $15,700,000 would be the field work cost of 250,000 miles, the grand total of overhead and field being thus $18,200,000. Something between these two figures of $18,200,000 and $21,000,000 would be the Government's outlay a very different figure from the three or four millions roughly estimated by some when the scheme was first projected.

Another interesting feature brought out by Mr. Prouty's testimony, was the probable cost to the railroads for performing their share of the task. Mr. Prouty affirmed that valuation work on the Boston and Maine is costing that railroad tbout $100 a mile, and that this would probably be the cost for the balance of the system. It is evident at this rate that the cost to the railways of the United States would be approximately $25,000,000.

Mr. Prouty afforded a basis also for a different mode of estimate. It would, he said, cost the Government for its work "about half" the outlay of the Boston and Maine. If the cost to the Government is $20,000,000 for valuation, the cost to the roads would thus appear to be about $40,000,000. The cost on the Boston and Maine is, however, high because of the lack of maps and records, and on some roads of more recent construction there will be a decided lowering of expense. Until more experience can be had as to the different types of roads, an inclusive estimate of cost to the lines cannot be furnished. The results of field work up to date points to the figures just furnished. They thus total from about $45,000,000 to $60,000,000 in all. If savings should be effected as hoped by some, this may be cut to $35,000,000, $50,000,000, and four years' time from next July. There are some persons who believe the work may be more likely to run to $15,000,000, or even more, in addition to the figures named, and six or even more years.

Viewed from any angle, it is a tremendous outlay, and there is a growing conviction, not only among railway officials, but among many prominent business men, including bankers and others familiar with financial conditions, that when completed, it will prove of little value, in view of the changed conditions which will make much of the data finally compiled both inaccurate and misleading.

PUBLIC EXPRESSIONS BY PROMINENT OFFICIALS

During the past few weeks there has been a considerable expression of opinion by prominent railway officials and others, regarding the business outlook and the effect of political developments upon general business and the railroads.

Oscar W. Underwood, House majority leader in the last Congress and now elected a Senator from Alabama, delivered an address before the Sphinx Club of New York on the evening of March 9th, in which he discussed the increasing tendencies towards government control of business and of railroads. Speaking of the present system of regulating business, he asserted that the time had come when the Government should aid and assist the leaders of industry and finance.

It is not enough for the Government to permit these men to rise from the prostration which has overtaken them and their affairs. We have reached the point on our way to social betterment where sound progressivism must recognize that the proper regulation of business requires that it must sometimes be helped and not always hindered; must be some times assisted and not forever stricken; that we must occasionally say "You may" and not always "You shall not."

Adequate provision for capital to maintain and extend the transportation system of the country is the problem confronting the Government in its regulation of railroads, Mr. Underwood asserted. He added that "our present system of regulation is breaking down in so far as it has supervised the finances of the railroads with a view to allowing them properly to protect their securities that their credit may be maintained to aid in present and future development."

The regulation of railroads, Mr. Underwood said, should take into consideration the interests, not only of the railroads themselves, but those directly interested as shippers, but of the entire country whose commercial prosperity is dependent upon adequate shipping facilities.

We have undertaken the problem of Government regulation of railroads and the Government will not turn back. Regulation of practices and rates is here to stay. But let us stand for wise and just regulation and not for ill-considered and dangerous regulation. We must regulate so as to ensure all necessary railroad facilities both for the present and for the future. As the public in the end must pay the bill, it is primarily interested in the railroads securing the money needed for their maintenance and development at reasonable rates and equally interested in seeing that it is wisely expended.

Revolutions never move backward. If Governmental regulation is unable to cope with the vexed problem that confronts us, the people will accept Government ownership as the next step ahead. It is therefore a matter of great importance that we should earnestly endeavor to reach a fair and reasonable solution of the problem of regulation at as early a day as possible.

After discussing the difficulties of dealing with the railroads through the varying jurisdictions of the State and Federal governments, Mr. Underwood said:

It cannot be denied that public control has reduced the rates charged for transportation and abolished unjust discrimination given to favored shippers. But the greater problem remains unsolved. Can the money be provided to expand and develop these great public works in a manner commensurate with the expanding needs of our commerce under the present system of public control?

If railway investments cannot be made attractive to capital is not the nation threatened with an inevitable breakdown of its transportation system?

W. W. Atterbury, vice-president in charge of operation of the Pennsylvania Railroad, in an address delivered on February 9th, before the combined commercial organizations of Philadelphia, including the Chamber of Commerce, the Bourse, Board of Trade, Merchants' and Manufacturers' Association and the Manufacturers' Club, had the following, in part, to say:

We have been devoting so much attention to killing the weeds in our transportation garden that we have neglected the very important duty of cultivating and strengthening the growth of the healthy and useful plants.

The great transportation machine of this country was and is sound. It needs continued regulation, but the regulation must be competent and sympathetic. The most pronounced weakness of our present regulation is that so much of it is incompetent. Laws are lightly passed by legislatures without any real knowledge of what is involved. Action is taken by commissions who can have no full conception of the delicate mechanism they are handling, nor of how the public interests may be finally affected by their lack of experience and training.

The supreme need in railroad regulation is competent regulators; but the appointment of men with such qualifications is not likely to be promoted under a political system where public office, for a short term of years, is almost wholly a reward for party fealty, nor can we look to the political parties themselves to improve matters. The business men of the country, whose welfare is so intimately interdependent with our transportation system, represent the class of citizens from whom the initiative should come in putting a new spirit into our system of regulation. We need scientific management in business, but we need also scientific management in regulation, or it must and will result in strangulation.

No step, in my judgment, could be taken by the business men of the country which would be more fruitful of practical benefit to the business life of this nation than practical action to insure that when a man is appointed by either the Federal Government or a state, to regulate our railroads, he shall be qualified by experience and training to consider and pass upon, constructively and helpfully the many important questions which will come before him.

To be concrete, my suggestion is that a minority of the railroad commissioners of the states and nation should consist of men trained in the practical conduct of railroad affairs. I suggest that all appointments should be for life or during good behavior; that the salaries should be such as to attract the ablest brains in the country; and that these positions should be surrounded with such prestige and honor that any citizen would feel that he could serve his country and his fellow man in no more exalted capacity than in representing the people in promoting, encouraging and regulating the development of its transportation agencies.

The country and its commerce cannot progress while the railroads are weak. I need offer little proof of that, after our business experiences of the past few years. Let me say, however, that the question of the welfare of the transportation interests is a personal matter with every citizen. The railroads pay annually, in round figures, $140,000,000 or more in taxes; they are the purchasers, under normal conditions, of one third of all the steel, iron and lumber products of the country, and of many other extensive lines of supplies and material. They employ about 1,700,000 persons.

Now is the most opportune time for you to make your influence felt when these great transportation systems are endeavoring to shake off depression and encourage business enterprise, and to forget the conditions of 1914.

Mr. Samuel Rea, President of the Pennsylvania Railroad Company, in the 68th Annual Report of that road, makes the statement that there remains a great deal of constructive work to be accomplished before government regulation of railroads—State and Federal— is placed upon a satisfactory basis. He said:

The increased scope and great burden of the duties and responsibilities imposed upon the Interstate Commerce Commission should now be followed by the amendment of the Federal laws from which its authority is derived. The Commission should be definitely empowered, by specific provisions in these laws, to strengthen the railroads, upon which the welfare of the country so largely depends, so as to encourage the investment of private capital for the expansion of their facilities and services, and the preservation of their credit by means of reasonable rates which will accord with the higher costs and burdens placed on them in complying with statutory requirements and Governmental awards and regulations.

The Commission should be enlarged and so organized as to be able to deal promptly with the important railroad questions which under the existing scheme of Governmental regulation must be considered by it. The position of a Commissioner should be placed beyond political influence by a long tenure of office, and the compensation should be sufficient to attract and retain men of the widest experience and greatest ability. The regulatory power of the Commission should be clearly extended to the supervision and control of all rates and practices which directly or remotely affect interstate transportation or commerce, and should include power to maintain a rate structure approved by or satisfactory to it, even though to accomplish this it should be necessary to prevent reductions of rates or to compel advances of rates found by the Commission to be unreasonably low. An unreasonably low rate may be beneficial to some one or more shippers, but the rates of some other shippers are sure to be disadvantageously affected thereby.

The services of the Commission should be made available to remedy the concededly inadequate revenues of the railroads for the transportation of mails and parcel post, and the power of commissions, State and Federal, to suspend increases in rates should be limited, so as to prevent loss of revenue to the railroads during the suspension of rates subsequently determined to be reasonable. Increases in wages and other burdens which seriously enlarge railroad expenses should not be imposed by legislation, or through awards of Governmental bodies, unless the ability of the railroads to pay the same under the rate schedules then in effect is clearly apparent, or unless the Interstate Commerce Commission is prepared to approve of increases in the rate schedules that will enable the railroads to meet the same without impairment of their credit or efficiency.

At a meeting of the Traffic Club of Chicago on February 25th, James J. Hill, in discussing the new laws which have been placed on the statute books by the action of Congress, had in part the following to say:

The legislation of these last two years alone is almost equivalent to requiring business to fit itself to the conditions of a new era. If it were true that all of the legislation will eventually prove helpful, it would still remain true that the adaptation of the country's business to entirely new conditions, the application of rules rigorous and unprecedented, will produce a trial period extremely critical for every kind of activity.

Any revision of the tariff usually requires two years before manufactures and commerce have accommodated themselves to the new schedules. The country is making that adjustment now; but, so much less important and uncertain in effect is it than other changes in progress, that business men almost forget the tariff in trying to forecast and prepare for the future.

The next new element is the Federal banking and currency system. The effect must be profound. The public as a whole, though not overlooking some faults of the new system, believes that it will work out well as a preventive of panics and a national clearing house of credits. Yet, without precedent as many of its features are, only experience can bring out in practice its merits and faults. Some uncertainty remains; and uncertainty, almost as much as actual disaster, slows down business operations everywhere.

If these two measures stood alone as innovations, they would compel business to proceed for some time cautiously and experimentally. But they are far from covering the situation. There are two others of more doubtful propriety and more questionable results.

A commission of five members has been created, having jurisdiction over corporations and associations organized to carry on business at a profit and not now under Federal control. Its office, in the first instance, is supervisory, and this does not seem radical at a first glance. But it embodies a fundamental principle that carries everything else along with it. It asserts the right of the Federal Government to control and regulate business as a whole; not merely that affected with some public use, not that which offends in some way against the law, but the peaceful and legitimate conduct of ordinary affairs. No session of Congress will pass without actual or attempted legislation to extend its powers and make its control more absolute and more arbitrary. Before the possibility of a future where it may ultimately be necessary for them to fight for their very lives, the business interests of the country naturally hesitate and are little inclined to extend their operations.

Finally, to enumerate only measures of first importance, there is the so-called Clayton bill, recently enacted. It is impossible to speak of this with authority, for it will probably be a generation before all of its provisions have been finally passed upon by the courts. But it is a sweeping affair. Some of its provisions are crude and almost ridiculous, like the limitation on interlocking directorates. That can produce nothing but crop of dummy directors. The man with property interests in two corporations will not abandon one of them because he can no longer be a director of both. He will send instead a clerk or other representative who will obey his orders. The public will gain nothing; the business concern will merely substitute a second-class man for a first-class. Other provisions of the law are plainly iniquitous. Such is the first formal piece of class legislation in this country, by which the same act, done in the same way and for the same purpose, is made illegal when committed by a manufacturing or trading concern and legal when done by a labor or agricultural organization. Even though this perversion of equal rights should be set aside by the courts, until it has been passed upon every business man will remember that the law explicitly authorizes formidable conspiracies against him and forbids him a remedy under heavy penalties.

The language of those sections of this law intended to prevent monopolies and to restore competition is necessarily so indefinite that no man can do more than guess at the interpretation the courts are likely to put upon it. Twenty years has been proved too short a time to settle the practical working effect of phrases like "reasonable rates," "substantially similar circumstances and conditions," and "competition in restraint of trade." It will be at least twenty more before the vague expressions of the Clayton bill—vague because the ideas of those who framed it and those who voted for it were formless and impractical except as part of the political game—shall have been crystallized into legal clearness. Meantime, even an innocent error of judgment may carry with it disastrous consequences. Every business man must take that possibility into consideration.

Not more money or more credit or foreign markets or merchant marine or any other accessory advocated is so necessary to the country at this time as a period of rest from legislative interference with and arbitrary control of the country's business.

Col. B. F. Cope, first vice-president of the Carnegie Steel Company, in his speech, said:

For one I do not feel that the expansion of trade in this country, so much of which is due to the railroads, could or would have been possible had the Interstate Commerce Commission been in existence during that period when railroad building was so active, and when faith in the future was so large an element in the development of the country. It was no time for restrictive measures, and while it may be conceded that some errors were made, the conditions were created by the people themselves. But that is past history and too much has been exacted for past blunders. What is a remedy for this excessive legislation? Let us so amend our state constitutions, or if this be not necessary, by enactment create one or more commission, composed in part of good lawyers and in part of good business men, thoroughly familiar with commercial conditions. The duty of this commission shall be to pass upon all proposed legislation before it is even submitted to the legislature. If it is unnecessary, then all expense connected with the consideration of a measure can be avoided, for it is passed upon first as to its legality, secondly as to its commercial necessity. Many measures are introduced purely for political effect in a member's own district and have no relevancy to general conditions. To such measures a commission can be merciless and possibly we can eliminate the petty politician. Certainly the number of measures can be reduced and more intelligent legislation can be expected.

With such a view would it be too much to ask the interests of transportation and manufacturing to co-operate in the development of a public sentiment favorable to such action? We do not wish to control legislation. Only better it, for the general good. It is recognized now that the great corporate activities of the country are neither soulless nor selfish. What has been done in the past few years in the way of welfare and safety work speaks for itself. No one in this practical work-a-day world is looking for an Utopia, but in the spirit of Christian fellowship we have certainly made wonderful progress and the best is yet to come.

The American Telephone and Telegraph Company has issued its annual report for the calendar year 1914. Perhaps no single industry in the world has such vast interests nor permeates so intimately every branch of industry. At the present time, the Bell Telephone Companies have close to 9,000,000 subscriber's stations, or one station to each eleven of the total population of the United States. The annual report of such a company is always interesting to all those engaged in commercial and industrial pursuits and particularly interesting are the comments made upon general business conditions.

Theodore N. Vail, is president of the American Telephone and Telegraph Company and in submitting the report referred to, to the stockholders of the company, he refers in a pertinent and timely manner to the cause of the present business depression, and suggests a possible remedy.

Without progress there can be no prosperity is the way President Vail sums up the situation. Telephone business has not suffered as much as other industries, but the growth of the Bell system has been retarded. Therefore Mr. Vail goes back to first causes and in a letter accompanying his report gives a searching analysis of economic conditions, which have put two million people out of employment.

Furthermore, he points out the relief needed by general business in order that the bread line may become a working line night and morning between places of employment and homes. To roughly epitomize his conclusions is all that is possible.

Never were the basic conditions of the country better than now for a restoration and continuance of normal conditions. The correction is simple and is pointed out by numerous precedents of the past and by well established economic laws. The extension and improvement of our transportation facilities is necessary to meet the increasing demands of the country both as a "going" and a "growing" concern. A billion dollars a year are needed and there must be a restoration of confidence which will enable the companies to procure at least a part of this necessary capital. That would mean employment and the circle of industrial conditions. For employment means ability to purchase. Ability to purchase means consumption. Consumption means production, and production for which there is a demand means prosperity.

As far as Mr. Vail can forecast the future, regulation and control by commissions or business courts have become a permanent feature of our economic laws. He points out that these processes could not be perfect from the start but are being improved.

"It is for the public to combine, to encourage, support and sustain all these courts and commissions and the judges and members of commissions, and above all to abandon condemnation of all conclusions when they differ from selfish desires or opinions based on one-sided and insufficient information. It is for the public to realize that any particular gain, if at the expense of other interests, is no permanent gain at all, that all business or public prosperity is based upon each party to any transaction getting some benefit from it.

"And above all, if there are to be courts of commerce or commissions then the settlement of all matters which have been referred to such courts by the legislature should be left to them."

Equally pertinent are the statements made by Hon. Frank B. Willis, Governor of Ohio, in an address delivered at the annual meeting of the Cleveland Traffic Club, on February 25th. He spoke, in part, as follows:

A realization of that spirit of co-operation, a realization of the merit which resides in the other fellow, a realization of the fact that this great republic is the mightiest industrial nation in the world, a realization of the fact that it is not possible, in the long run, for one class to succeed unless all succeed; when we shall come to know well the lesson of these things and preach less of class hatred and demagoguery, we will make a tremendous forward stride in this country.

There is another thing I should like to say to business men. In the long run the people get the kind of government to which they are entitled. Government cannot rise higher than its source—it will inevitably reflect the views of those to whom it is responsible. This fact makes imperative the earnest, patriotic, unselfish effort of all our people toward the maintenance of the highest ideal of civic righteousness. If government is weak, if bad laws are made, if administration is inefficient, the reason in the last analysis is the fact that the people that ought to pay the most attention to such things—the people that are best qualified to judge of such propositions, and to solve such problems, do not give the attention to those public questions which they should. I am happy to say that everywhere in this country business men are becoming unafraid; they are willing to stand up and say, "Here, the reign of the pseudo-reformer, the constitutional law-monger, the demagogue-orator, is at an end. We are ready to stand up and look people squarely in the face and say, 'We are demanding that legitimate business in this country have a chance to breathe and live.'"

The commercial advancement of any people is dependent upon its facilities for transportation. The empires of ancient times thrived or perished as they enjoyed or lacked the advantages of greater transportation.

Facilities for trade and commerce have increased at an almost unbelievable rate. But yesterday the frail barks of an uncertain and dangerous commerce were tossed about like chips upon an angry sea; to-day the leviathans of trade and travel plow summer's calm or winter's sullen billows with the precision of a machine and the speed of an express train.

The Half-Moon was the first European vessel that ever sailed the Hudson; yet wonderful was the achievement of this dauntless captain, 100 ships as large as the Half-Moon could be stored full rigged in the hold of a Hamburg-American liner. The Clermont, first of steamships, amazed the world a century ago by ascending the Hudson against wind and current; yet the Clermont could be easily hidden in one of the smoke stacks of the Mauretania without seriously interfering with the draft of her belching furnaces.

This astonishing advancement in water transportation has been more than equalled by the forward strides in railroad construction. The first railroad trains were puny, tiny affairs with a man on horseback sent ahead to warn people off the tracks. Passenger coaches provided narrow quarters for six people, and freight cars held no more than a wagon box. Railroad construction has developed beyond the wildest dreams of its early promoters. Our country has now one and one half times the railway mileage of all Europe. Though Europe has five times the population per mile of railroad that the United States has, its freight traffic is only a small fraction of ours. The railroads of the United States last year carried two hundred and fifty billion tons of freight one mile. The railroads of Germany carried only thirty billions, one seventh as much, while France, Austria and England carried about fifteen billion tons each, only about one fifteenth as much.

If the railroads are to prosper, if transportation is to develop, if there is to be money to build new lines, to put in new bridges, to purchase new rolling stock, to keep things going, there must be existent in the country business conditions which promote confident financial stability, and a desire on the part of business men to put their all, not only financially, but to put themselves into the business, in the confidence that what they do shall be appreciated and shall receive legitimate reward.

I am not here to criticise. I am not here to find fault with anybody; certainly not to make a partisan speech, but I am here to say some things that I want to say, and which I believe are true. What is the matter with this country anyhow? The sun shines; it is as bright as ever. The fields are as fertile as ever. The mineral supply is as great as ever. Our people are as earnest and virile as ever. How does it come, men, that want stalks through the streets? How does it come that we have the problem of unemployment?

We have heard much about the doctrine of let the people rule. We all believe in that; and I believe in it a good deal more accurately than some of my friends who have been preaching it in the past, but who have undertaken to express it, not in the actual form of rule by the people, but in the centralized authority that amounts to autocracy. My friends, this is a government of constitutional law and not one of mere whim of mere personal opinion. Here just the other day a Cabinet minister is reported to have said, "If business doesn't behave itself, then we will crush business." Business ought to obey the law and from the experience I have had with business men I think they want to obey the law, and intend to obey the law. The trouble is that there has been such a volume of experimental legislation that the ordinary business man can't tell what the law requires him to do. That's what's the matter with it. Yet a Cabinet minister is reported to have given utterance to the sentiment that I have just quoted.

As I started to say, business men, just the same as any other men ought to obey the law, and, in my opinion, they want to obey the law. But listen to me, men, in this country we have a government where the question as to whether the law is to be obeyed is to be settled by some means other than mere personal judgment of a Cabinet officer. This is a government by constitutional power, and so I say, we believe, all of us, in the proposition that the people should rule in the best and sanest sense, but if I mistake not, along with that at this time, there should be sounded another slogan. We have sounded the slogan, "Let the people rule"; let us sound another slogan, for the best interests of this country, for the thousands of unemployed laborers walking the street. Let us sound another slogan: "Let the people eat." That is coming to be a problem in its application.

Let us see, then, what the difficulty is with this country. Theories of government and "Psychologies" of living all fail, if mills are idle, business stagnant and workmen unemployed. Legitimate business has been too long the helpless victim of unscientific tinkering and selfish demagoguery. It should be fostered and encouraged, not hampered, restricted and annoyed.

The man with the hoe, the hammer and the shovel, the builder, the merchant, the sturdy son behind the plow, the financier, the professional man, and the industrial manager, these one and all unite in the belief that legitimate business in its valiant struggle to again come into the fulness of its own, requires less tinkering, less doctoring, less hampering and needs to be viewed by the public in more of an ordinary common sense attitude.

One cannot give an unprejudiced view to our conditions of to-day without reaching the belief that there is justification in the cry now growing in volume, to give business a chance to breathe and to digest the heavy legislation meal it has been forced to swallow. A little less medicine, a little less nagging, a little less of useless entangling machinery of law, the pointing out of a straight and honest course and from out the shadows of uncertainty and faltering, we cannot but believe that prosperity will emerge.

The great majority of business men of our country are honest in professing that they desire to do what is right. But out of a period of what might seem to approach legislative hysteria has come a volume of laws, some of which were good and were needed, but many of which tend toward waste of energy and increase of the public expense burden, until there is sincerity in the complaint which is arising, that most honest intending men know not which way to go lest they go wrong.

The time is ripe and the occasion is present for us to aid in a genuine revival of real Americanism. The employer and employe are both rapidly coming to better know they have most interests in common. They are learning with each passing day that a discerning public is beginning to fully recognize its own needs and can quickly pierce the veil of cant or insincerity and will not brook selfishness on the one hand or fanaticism on the other.

"Justice, co-operation and harmony" is the needed slogan to which the business man and wage earner must both turn their attention. Never was the moment more propitious for us to make our country gain greater prestige. All we require is proper thought and conscientious effort to keep from tying our hands and feet so that steady progress is impossible. The general public realizes that what may have once seemed to be a popular practice of crying out against any and all business because in some cases there may have been wrongful abuse by some interests, folly, if we would have accomplished for us those things which are best for both the employe and employer.

Legitimate business, I believe, is always willing to listen to reason and to correct its faults, but it is time for a little less suppression of straight business, honestly intended and a little more curtailing of the professional reformer whose chief aim is to climb prominently into the limelight while somebody else pays the bill. The people of America are ready and willing to witness a real "comeback" of national commercial supremacy. This will be possible only as business men give larger attention to public affairs.

President Arthur T. Hadley, of Yale University, speaking recently before the 20th Century Club of Springfield, Mass., on the railway situation with special reference to the New York, New Haven and Hartford, of which company he is a director, said in part:

The present condition of the New Haven road was brought about by a combination of some unwise finance with a great deal of unwise operation and unwise politics.

In 1913 the road paid $9,000,000 more for wages and fuel than would have been the case at the prices which prevailed ten years earlier, and received no more for its services. * * * * Methods of handling freight had become more economical as the volume of traffic increased. Methods of handling passengers became more expensive under the same conditions. The authorities of New York State compel the New Haven road to do its commutation passenger business at rates which mean a direct loss of nearly $1,000,000 a year. The United States Government penalizes the road an equal amount for the carriage of the mails. These three things, taken together, would have involved a serious reduction of the dividend even if there had been no outside purchases of any kind. * * * *

"BUY IT NOW" CAMPAIGN

Many railways have joined heartily in the "Buy it Now" plan which represents an effort to relieve depressed conditions and stimulate trade activities.

Confidence and a freer interchange of commodities, is at the present time, needed more than anything else to restore a normal state of prosperity and commercial organizations, appreciating the necessity for a concerted movement which would bring about these much desired results, have been active in encouraging a "buy it now" campaign which has for its purpose the immediate purchase of necessary supplies, rather than the postponement of such purchases until general business conditions appear to be of a more favorable character.

It is hoped that the general application of this plan will, in itself, prove an important factor in dispersing the general depression which has been in evidence during the past year. That railway executives recognize the importance and benefit of a general campaign of this character is evidenced from the following excerpts taken from letters recently written by prominent railway presidents endorsing the movement:

The Baltimore and Ohio Company is in full sympathy with such a movement, and as you perhaps have noticed, we have already made a rather substantial contribution to that end—that is to say, we placed an order last week for two thousand new freight cars. This is the first order for equipment that has been placed by this company in more than a year, and while we have more equipment than is needed under existing conditions, we are hopeful that conditions will mend before long and that the new equipment will then be required.—*D. Willard, President, Baltimore and Ohio.*

We have already purchased $385,000 worth of material in anticipation of our requirements for the next six months and year and are just about to enter into contracts for $200,000 worth of additional material covering the year's requirements. I suppose this is the most practical way in which we can aid your movement. I will be glad to know what success you have. I am heartily in accord with the work you have on hand.—*S. M. Felton, President, Chicago Great Western.*

We fully agree with you as to the importance of the "BUY IT NOW" program and our company is actively engaged in furthering these movements. We obtained the approval of our board this week for the purchase of something like a million and a half dollars worth of material, for which we will solicit bids in the very near future.

We have not postponed any improvements or permitted our maintenance work to lag in any respect; on the contrary, we have been so situated that we have had funds to pursue our usual course, both for the North Western and Omaha companies.—*W. A. Gardner, President, Chicago and North Western.*

As an indication of what the Big Four is doing in the way of purchasing material and supplies for future requirements, would advise that we have just placed orders for 4,500 tons of rail and hope shortly to buy some additional for use during the year 1915, in addition to which the company has recently bought 18 engines. We also purchased some time ago 7,000 freight cars which are now being delivered.

All this calls for the expenditure of large sums of money, which we are glad to expend in the hope that better times and results are in store for us all.—*A. H. Smith, President, New York Central Lines.*

We have already asked for proposals for 150,000 tons of steel rails for the year 1915, and for 17,000 tons of structural steel and 1,200 tons of reinforcing steel. During 1914 the purchases for our lines east and west of Pittsburgh amounted to approximately $67,500,000, an average of about $5,625,000 per month.—*W. H. Myers, Vice-President, Pennsylvania Railroad.*

I quite concur in the views expressed as to the desirability of the "BUY IT NOW" movement, and this company will do all that it can to further the campaign.—*H. U. Mudge, President, Rock Island Lines.*

We will be very glad to co-operate in this BUY IT NOW movement and have given instructions to all our people accordingly.—*Hale Holden, President, Burlington, Route.*

A SUGGESTED BILL TO PREVENT TRESPASSING

The lives of hundreds of useful American citizens continue to be lost through trespassing upon the country's railways, and in spite of the efforts being made by the carriers to have this practice abolished, little real headway has as yet been made. This is largely due to the fact that the laws now on the statute books are either not enforced or are of such an inadequate nature, as to have little effect upon the general situation.

At the last meeting of the National Association of Railway Commissioners at Washington, a law was recommended by this Association, definitely penalizing trespassers on railway tracks, and its passage by the various state legislatures would prove a long step in the right direction. It is suggested that here is a matter with regard to which railway officials should co-operate most heartily with the state authorities, with the view of procuring its enactment at the earliest possible time. The proposed law reads as follows:

A Bill to prevent trespassing on the tracks and rights of way of railroad companies operating within this state and to provide punishment therefor.

Whereas, great loss of life and limb results from trespassing upon railroad property and rights of way,

Now, therefore, The people of the State of .... enact:

Section 1. It shall be unlawful for any unauthorized person to walk, ride or drive upon or along the tracks or within the right of way of any railroad company operating its lines within this state, or to cross such tracks or right of way at any place other than at a public or private crossing; Provided, however, that none of the provisions of this act shall apply to employes or licensees of any railroad company while engaged in the performance of the duties of their employment or otherwise acting pursuant to the license, nor to any person going in or upon such tracks or right of way to save human life or to protect property, nor to any person going or being upon or in the depot and station grounds of any such railroad company as a passenger or for the purpose of transacting business therewith. It is further provided that any station agent or section foreman in the employ of a railroad company doing business within this state shall have the same power and shall be charged with the same duties in the enforcement of this act as are given to deputy sheriffs by the general laws of the state.

Section 2. Any person wilfully violating the provisions of this act shall be deemed guilty of a misdemeanor, and upon conviction thereof before a court of competent jurisdiction, shall be liable to a fine of not more than one hundred dollars or to imprisonment in the county jail for not more than ninety days or to both such fine and imprisonment in the discretion of the court.

The necessity for the immediate enactment of some such law is not only indicated by the total loss of lives on all railways from trespassing, but is even more clearly brought home when one considers the results on a single large system.

Take the Pennsylvania Railroad for example. This road's safety record in every other particular is unparalleled. Year after year it has carried millions of passengers without a single fatality, and the result of its safety efforts in the conservation of the lives of its employes have resulted in placing it in the front rank of this movement. Notwithstanding this fact, there were 301 trespassers killed on the property of the Pennsylvania Railroad during 1914. These deaths were charged to so-called "railroad accidents" and yet the railroad was powerless to prevent them. Among those killed were students, lawyers, painters, salesmen, miners, soldiers, stationary engineers and other useful citizens.

In spite of the fact that the Pennsylvania Railroad has for many years conducted an aggressive campaign against trespassing and the dangerous practice of stealing rides on trains, these were the best results they could obtain for the year 1914, and the fault lies almost wholly at the doors of public officials and the lack of proper legal penalties, whose application would have a retarding influence upon this dangerous practice. The following figures, which are illuminating, show the trespassing fatalities which have occurred on the Pennsylvania Railroad during the past eight years:

Year.	Number Killed.
1907	572
1908	475
1909	410
1910	336
1911	338
1912	255
1913	311
1914	301

Many big railroads have recently redoubled their efforts to reduce the practice of trespassing. No results of a satisfactory character can be obtained, however, until the hearty co-operation of all county, city and borough authorities is procured, including the passage of laws stringent enough to discourage the habit.

"BILLY" SUNDAY AND THE RAILWAYS

It may be that outsiders are not fully cognizant of the fact that "Billy" Sunday has been so industriously pursuing the devil in the old City of Philadelphia, that there are few who have not felt his influence through one source or another. "Hitting the Trail" has become as popular as afternoon teas, while even many a hardened railway employe has found sufficient time not only to attend a number of Mr. Sunday's meetings but to become an enthusiastic advocate of the policies for which he stands. The admiration appears to be mutual, as the Evangelist is outspoken in his praise of the manner in which railway employes discharge their duties.

As an outward manifestation of this regard, the accompanying illustration shows a chest of silver presented to Mr. Sunday on February 17th, by the employes of the Pennsylvania Railroad Company, and it might be added that any body of men who would "loosen up" to the extent indicated by this fine array, must have been deeply

Chest of Silver Presented to Rev. W. A. Sunday by Employes of the Pennsylvania Railroad.

impressed with Mr. Sunday's message and the good it holds for humanity at large.

MAINTAINING PROPER TEMPERATURE IN PASSENGER CARS

While rapid strides have been made within recent years in the development of satisfactory heating systems for passenger cars, the best efforts of the mechanical departments are often largely discounted by the carelessness of the trainmen.

Effective means are now available to maintain an even and comfortable temperature in the passenger cars on all the larger systems. Thermometers are located in convenient places and trainmen are supposed to consult them from time to time and to maintain a temperature as prescribed by the companies' rules. While this service is satisfactorily performed in a great majority of instances, it is nevertheless true that considerable just complaint is constantly being made by travelers.

Competition, as stated in these columns before, is getting to be more and more a matter of service, and it would appear that one important method of avoiding unfavorable criticism, would be to make a special effort to see that an even temperature was maintained in all passenger equipment.

There is nothing that will create adverse comment on service as quickly as poor ventilation or lack of, or excessive heat in coaches and sleepers. This is a detail, the careful attention to which, will add greatly to the popularity of the service provided Lack of attention to these conditions indicates to the passengers an indifference to their comfort and health which not only leads to adverse criticism but often to an actual loss of patronage.

WELFARE WORK ON THE GRAND TRUNK

The public little appreciates how extensively welfare work has become a factor in railway management. A little brochure recently issued by the Grand Trunk summarizes work of this character on this great railway system and strikingly illustrates to what a large and diversified extent it is caring for the welfare of its employes. Provision is made on a comprehensive scale for employes overtaken by old age, accident or sickness, and there has been a general development of welfare work as it relates to big industrial undertakings.

In 1874 the company under a special federal act, inaugurated a scheme for the superannuation of its indoor employes. The scheme embraced all offices of the passenger and traffic departments, telegraph operators and the clerical forces generally, who, on the date of its becoming effective, were under thirty-seven years of age, and in receipt of more than four hundred dollars per annum. Membership was optional for officers and employes then in the employ of the service, but compulsory to all those who entered the service after October 1, 1874. The revenue of the fund is derived by a contribution of the members of 2½ per cent of their pay deducted monthly from the payrolls. So satisfactory has been the results of the movement, that on the recommendation of the actuaries when making their last report in 1911, a reduction was made in the rate of contribution from 2½ per cent to 1½ per cent.

Members are eligible for a superannuation allowance at the age of fifty-five years, such allowance being computed on the basis of one-sixtieth of the retiring pay for each year of membership, the allowance, however, in no case to exceed two-thirds of the average annual pay during the last ten years of membership.

Members compelled to resign from the service from any cause other than fraud, misconduct or dishonesty, after reaching the age of fifty years, are entitled to a superannuation allowance on the same basis as mentioned in the preceding paragraph.

In the event of a member being permanently incapacitated from work, owing to mental or bodily infirmity, after having contributed for ten years or over, he is entitled to an annual allowance for life.

The Grand Trunk has also an insurance and provident fund which was established in 1874, for the purpose of assisting employes who had met with mishaps. Later, this was developed into an association on a more comprehensive scale which included allowances for death and disablement arising from natural sickness as well as accident and known as the Grand Trunk Railway Insurance and Provident Society.

Membership is extended to every employe of the company in Canada. The employe stricken with illness receives not only a daily monetary allowance, but also medical attention—including specialists' fees—free medicine and allowance for hospital expenses. According to the nature of his employment and his own desires he may provide for the payment, to his dependents at his death, of varying sums from $250 to $2,000. In addition to the fees of its members the Society receives annual contributions from the company. Dependents of deceased employes received over $100,000 from the Society in 1914, while more than $100,000 was also paid for medical attendance and sick benefits during the year.

The Grand Trunk Railway has for many years done a most practical kind of welfare work for engine and trainmen through the Railway Y. M. C. A. Buildings have been erected at fourteen division points, which provide meals, beds, baths, recreation, books, magazines, etc.

The company makes a monthly appropriation of from $90 to $150 per month to these Associations, making a total sum of about $1,500 per year in addition to first cost of the buildings.

The employes contribute to the support of these Associations by a small annual fee for membership and by paying cost price for meals and lodging. Clean beds are given for the modest sum of fifteen cents and meals at about thirty cents.

The Grand Trunk has also a "safety first" movement well under way, which was inaugurated in August, 1913. On each operating division and in all the larger shops safety committees have been organized, composed of officers and employes. There are twenty-five of these committees composed of about 450 members. Meetings are held once a month. The members of such committees are given the authority to call attention of any employe to unsafe methods of doing work, and, if necessary, to administer a reprimand for such unsafe methods. This principle has been found to work well because no employe relishes the idea of thinking that his methods of work are so unsafe as to merit condemnation by his fellow employes. All employes are urged to call attention to unsafe conditions, and it is impressed upon all concerned that no one will be censured on account of making such report.

First aid instruction has also been taken up, particularly in the mechanical departments of the service. This instruction is given to Grand Trunk men in co-operation with the St. John Ambulance Association. The company pays the salary and expenses of a general organizer to attend to the work and conduct classes. There are now twenty-six of these classes at various points on the system with 779 students enrolled. Examinations are held at intervals and certificates, medallions, etc., presented. In addition the company has further contributed the sum of $2,000, and President Chamberlain has contributed $500 for the inauguration and development of the first aid work.

And last, but not least, the Grand Trunk has been engaged for a number of years in producing trained mechanics from a system of evening classes inaugurated at several points of the motive power department at which apprentices in the shops are given a thorough theoretical grounding in their chosen trade.

During the past ten years classes have been established at seven points on the system, and from the benefits already derived it was considered a few months ago that the time had come to reach out still further, and, by one means or another, offer every apprentice in the motive power department the opportunity which had for so many years been given to some of the more favored stations. This was a difficult task, as owing to the extent of the territory to be covered the remaining apprentices were scattered in small groups ranging in numbers from 2 to 20, whereas the older places had from 20 to 160, which made it possible at these larger stations to have special instructors. Finally it was decided to appoint regular teachers at every point which employed ten or more apprentices, apprentices at still smaller stations taking up exactly the same work by means of correspondence. A traveling instructor was also appointed whose duties require him to make regular visits to each apprentice taking instructions by correspondence and explain any difficulty which may have come up in the course of his lessons. Explanations are also made through the company's mail, yet the personal explanation is clearer and more satisfactory in every case. The foreman at any station receiving a visit, immediately collects the apprentices under his charge in his office, which for the time being becomes practically a regular school, similar to those at the larger stations.

There are 550 apprentices over the system taking instruction at these classes, 500 of whom are taught at 15 regular schools, employing 35 shop and class instructors, and the remaining 50 are spread over 15 other points and are taught partly by correspondence.

A liberal prize list (over $600) is offered by the company, and for competition purposes stations are grouped according to the number of apprentices employed, and the kind of shop they are employed in.

Any boy at a smaller station who desires it can be transferred to the large shops for the last year of his apprenticeship, and by reason of the similarity of methods of instruction at all places he is enabled to fit into his proper position, with a little extra effort.

The expenditure pertaining to the apprenticeship classes is entirely borne by the company, but after ten years' trial it has proved a good investment.

In summing up, it can be said that this is a splendid record, of which the Grand Trunk can be justly proud. Furthermore, it is reflected in the excellence of the service. Welfare work always pays. It not only helps the individual but establishes an esprit de corps which brings very tangible results to the corporation long-headed enough to appreciate the sure reward from such an effort.

Contemporary Opinion

Saner Views on the Railway Situation.

(From the "Bache Review.")

IT was not difficult to foresee, three or four years ago, distressing outcome of baiting the country's railroads, if one carefully analyzed the whole subject. And those spokesmen, like the "Bache Review," which began then to sound the warning note that the railroads must be honestly paid for service or the country would rue it, are having many followers now. The truth of this is now belatedly penetrating the public mind and the newspapers are taking up the matter over a wide circle. The Interstate Commerce Commission has at last seen a light and is doing everything it possibly can to remedy the evil of long dormant inaction or positive opposition. It now has the task of educating and converting the still-farther-behind State Commissions. But the Commission has delayed too long. Such widely circulated spokesmen for the People as Elbert Hubbard's Fra and Philistine are whacking the unbelievers lustily.

In the last number of the Philistine, Hubbard has this (in part) to say:

"Railroad incomes fell off a hundred million dollars in Nineteen Hundred Fourteen as compared with Nineteen Hundred Thirteen. Wages, materials, taxes, all were higher. In addition, there is deterioration, which grows in inverse ratio to the square of the distance.

"Altogether, the cost of hauling folks and freights is considerably more than it was five years ago, and receipts are much less.

"The postponement of needed repairs in upkeep will make the eventual outlay much more than it would be if the property were kept in first-class condition.

"The floating of short-time notes, in order to meet payrolls and taxes, is hand-to-mouth financiering and the necessity of such methods is a disgrace.

"There is no man in any line of industry in America whose business would not at once be benefited if the railroads were allowed to adjust their rates on an equitable basis.

"Prosperous railroads mean a prosperous people. There is no business that so divides its prosperity with its patrons as does the railroads.

"The railroad is the world's biggest customer for iron, steel, copper, wood and glass. It is the world's greatest employer of labor."

And in the last number of the Fra, Hubbard hands it to the Interstate Commerce Commission in his message-to-Garcia-style.

The conversion of the Railroad State Commissioners is beginning with Michigan. There last week the Chairman of the State Railroad Commission came out in convincing language for the roads. He said in part:

"Conditions under which the roads were operating in this state caused me to look into the question some time ago for my own enlightenment and I was dumbfounded to learn that of the 56 roads in Michigan, 33 of them were not earning enough to pay the interest on their funded debt.

"Under our interpretation of the reports, the Commission is bound to say the railroads are not earning enough properly to discharge the functions of common carriers."

Last of all, the Supreme Court has handed down two opinions this week which are encouraging because they rebuke those perverse State Commissions which are trying blindly to regulate rates unreasonably and selfishly, making good for their own state as to a few of its interests, but disregarding the great damage which has been done to the whole country by this long-continued legislative milking of railroads.

Now all this shows the drift. But the trouble is that half the mischief has been done, as bankrupt roads and impoverished holders of railroad securities all over the country show. Then, too, the mill cannot grind with the water that is past; the years of lean times that have been going by are records of tremendous energy and industry on the part of our millions of workers with little to show for it in the way of justly-due profits. These are things that cannot be made up. The political parties and their blind leaders are sufferers, too, but they have not yet found out why. If Mr. Taft had seen to it that the 10 per cent increase asked by the railroads in 1910 was granted, the great prosperity that began in 1909 would have kept him in office unquestionably. And if the Democratic leaders had recognized the real cause of business depression —the adversity of the railroads—their party would not have been discredited to-day.

The Nerves of the Engineer.

(From the St. Louis "Globe Democrat.")

THE life of a locomotive engineer appeals to the imagination. With his hand on the throttle which controls the movements of the steam monster, he seems a monarch, the very embodiment of man's mastery of the harnessed forces of nature. In times of great stress he performs prodigies which enroll him on the imperishable list of heroes. Literature has celebrated his devotion to duty, his reckless disregard of his own safety when the lives of those intrusted to his care are involved. But that he has nerves has been forgotten or ignored.

The man who walks carelessly across a railway track in front of an onrushing train forgets it. The man who runs across, as if in the greatest hurry of his life, although he usually turns around and watches the train go by, also forget it. He feels that he is safe. But the engineer is alarmed. He does not know but that the man is deaf. The train has such a momentum that it could not be stopped. Old engineers say that they have had their nerves shattered by such incidents. One who admitted that his gray hairs did not come from age thus described it: "If you were swinging an axe and a child should quickly place its finger between the ax and the log, how would you feel? This is the kind of experience that every locomotive engineer must suffer, sometimes many times a day. The fatalities are infrequent, but no mathematical computation of probabilities can remove the anxiety of the helpless engineer. He dreads what may easily happen." If the public could but realize the position of the man in the cab he would be spared many nerve-racking experiences. Furthermore, many needless accidents would be avoided. One of the slogans of the Safety First movement should be: "Put yourself in the engineer's place."

Destructive Legislation.

(From the "Railroad Reporter and Travelers' News.")

PROGRESSION in all things is the universal law. Fortunately it comes to pass that the periods of hysteria which intermittently afflict the people and are the cause of hasty and unthinking crusades, carried on with the unnatural ardor of fanaticism against this or that condition, which has in itself been the result of evolution, is inevitably followed by an era of reaction and reconstruction.

It must be with a feeling of immense satisfaction that we perceive the dimunition of the unreasonable attitude of the people in general and their legislative mis-representatives in particular toward the financial and industrial backbone of the country, the railroads.

This condition is clearly reflected by the stand taken by the railways themselves, backed by the petitions of business men the country over, against destructive legislation.

A case in point is the country-wide protest against the full-crew laws.

Thirteen Eastern railroads have announced publicly that they have combined their efforts to combat them.

Fourteen Western railroads have presented a petition to the Governor of Illinois to repeal the two-cent fare law.

In Missouri one hundred members of the House and twelve Senators presented to the Legislature petitions signed by constituents urging an increase in passenger rates to two and one-half cents a mile.

On February 3rd, a petition was presented to the Legislature of Kansas, signed by several hundred persons in Woodson, Coffey, Labette and Sedgwick cuonties.

The petition states that: "Drastic legislation will work no benefit to the traveling public," and asked the Legislature to be lenient in the matter of anti-railroad legislation.

In Arizona a bill has been introduced for the purpose of encouraging the construction of railroads.

In the more remote West the Farmers' Irrigation Congress resolved: "We recommend the modification of such restrictive legislation as has been applied to railroad enterprises and found to be so burdensome as to destroy profits from railroad operation and discourage the investment of capital in betterment and extension of transportation facilities."

These and other indications of the new attitude toward the railroads are intensely gratifying to those who are in a position to understand the situation.

It proves beyond question that the Legislatures have not been the true representatives of the people.

These new friends of the railroads are such for their own interests.

The interests of the railroads are the interests of the people and it is because of the tardy realization of this fact that there are a sufficient number of these new protectors of the railroads to justify them in appealing against the Legislatures.

There is a Federal full-crew law pending and in New York State a long-train law is proposed which would tend to make two trains do the work of one.

The Public Utilities Commission of Connecticut, an unprejudiced and expert body, have passed upon the merits of the question. In submitting the results of its deliberations the Commission stated that: "To increase the prescribed minimum generally, or to increase the train crews beyond a reasonably safe requirement, would tend to rather lessen efficiency and to decrease safety in operation because of a greater division of responsibility and the lessened individual alertness which would follow."

It would seem, therefore, that in reality, should this law be passed, the railroads would be fined to the disadvantage of their patrons under the pretense of safety first.

A billion dollars of railroad securities are in financial disfavor.

There is a wide unemployment among railroad wage-earners. All this is greatly to be regretted, but thanks to this new and reasonable attitude of the public in general it is hardly conceivable that the Legislatures will dare to pass laws detrimental to the prosperity of the country, especially as the inspiration of such laws is obviously the extortion of money from the railroads on whatever pretext, and as the companies intend, to quote the statement of the thirteen associated roads mentioned above, "to submit the question directly to the public, that the people may determine what is just, right and fair."

The country is to be congratulated. It surely looks like the auspicious beginning of an era of good times.

Let us help the good work along and BOOST with all our might.

An Open Letter.

(From the Des Moines, Ia., "Register and Leader" of February 9, 1915.)

ST. LOUIS, MO., Jan. 29.—Honorable Edgar E. Clark, Chairman Interstate Commerce Commission, Washington, D. C., Dear Sir: The condition of the railroads in this section of the country was forcibly brought to our attention from a circumstance which occurred on the morning of January 15th. A party of seven of us left St. Louis on the night of the 14th, on the Wabash Railroad, for the purpose of attending a business meeting at Des Moines, Ia., on the following day. A wreck occurred near Runnells, Ia., a short distance out of Des Moines, in which one of our party was instantly killed, and others more or less seriously injured. The wreck was caused by the poor condition of the track and equipment; and this latter is directly attributable to the fact that the road has not been permitted to charge rates such as to enable it to put its properties in condition so that the public's safety and convenience can be properly conserved. And what can be said in this regard with respect to the Wabash Railroad, is applicable to all of the railroads in this section of the country of which we have any knowledge. And it seems to the signers of this communication that the rate-making bodies of the country, including the honorable Interstate Commerce Commission, are responsible for the condition of the Wabash Railroad Company, and other railroad properties in the country, as they exist to-day. The influence of state rates on railroad finances is relatively small. Hence, the rate-making power in the United States is almost entirely in your hands; and, in our opinion, conditions have about reached the point where the public ought to, and will, demand safety first.

The Wabash Railroad Company cannot be accused of using its earnings for any but proper and legitimate purposes. As you know, the road is in the hands of a receiver of the United States Court, and is not meeting the interest charges on any of its bonded obligations. All its earnings, at this time, are going to operating expenses and betterments; and yet, within the past few months the United States judge having charge of the operation of the road publicly announced that the rates were so inadequate that the road could not be properly operated and sufficient funds left to keep its road and equipment in proper condition. This of a railroad with terminals in Chicago, Detroit, Pittsburgh, St. Louis, Kansas City, Omaha and Des Moines —very important cities of the Mississippi Valley, and traversing a territory unexcelled for fertility anywhere in the country.

Unless relief is quickly afforded the railroads of this country, the death roll from accidents resulting from the poor condition of tracks and rolling stock will, in our opinion, shortly prove appalling.

The power vested in your honorable Commission is absolute, and the first thought and care of the government should be of the lives of her citizens, and it appears to the signers of this letter that your honorable Commission is not animated by this feeling, but, on the contrary, are trying to conserve the public's money at the expense of their lives and limbs.

There is no question in the minds of the public, but that if the railroads were allowed to charge sufficiently for their services, they would use the money thus acquired in putting their roadbeds and rolling stock in condition so the public could be served with safety and dispatch, and if death and destruction is to result from your policy, the public, as soon as they become alive to the situation, will hold your Commission responsible, and we trust in the interest of humanity that you will promptly take such action as will relieve the situation.

Frank H. Sullivan, Attorney-at-Law,
 1717 Third Nat'l Bank Bldg., St. L., Mo.
S. H. Fullerton, President,
 Chicago Lumber & Coal Co.
Robert Fullerton, Jr., Director,
 Chicago Lumber & Coal Co.
C. W. Reighard,
R. W. Fullerton, Secretary,
 Chicago Lumber & Coal Co.
A. J. Seigel, President,
 Huttig Sash & Door Co.

Seeking a More Enlightened Policy of Railroad Regulation.

THE Committee on Internal Trade and Improvements of the New York Chamber of Commerce, made a report on the address before that body on December 3, 1914, of Mr. Samuel Rea, President of the Pennsylvania Railroad System. The report in part, was as follows:

The address of President Rea in its keen analysis of the railroad situation as affected by the problems of governmental regulation, made a profound impression upon the six hundred business men who attended the meeting. The address was published in the Bulletin of the Chamber, it was sent to all of our members and has otherwise had a wide circulation. Mr. Rea made eight recommendations:

1st. That the membership of the Interstate Commerce Commission should be increased by the addition of new members selected from men trained in railroad management and of broad business experience.

2nd. That the term of office and the compensation should be made sufficient to attract men of the greatest ability.

3rd. That the power of regulation of the Commission should be extended to the support and control of all rates and practices which directly, or remotely, affect interstate transportation or commerce.

4th. That the Commission should have the power to maintain a rate structure approved by it, even though it should be necessary to prevent reduction of rates or compel advances of rates found to be unreasonably low.

5th. That for the existing repressive policy of public legislation, a constructive policy should be substituted so as to permit the railroad companies to do their full share in the development of the country's resources. The Commission should be entitled to deal with the questions before it not merely from the standpoint of the shipper and the carrier, but from the larger standpoint of the entire country.

6th. That the country should not be committed to the vast expenditure involved in a Federal valuation of railroads until one system, or the lines in one section of the country, shall first be valued and the results demonstrated to the country.

7th. That Congress should refer to the Commission, for investigation and report, such legislation as affected wages, working hours and conditions, increased taxes, boiler inspection, non-compensatory mail and parcel post service, and other matters which seriously affect railroad revenues and expenses.

8th. That the extraordinary power to suspend rates without a hearing should be limited to a period not exceeding sixty days after being filed with the Commission, or some such reasonable period.

These recommendations, in order to be adopted as a part of the national policy, would require additional legislation by the Congress. Such legislation seems to be impossible of attainment at this time, with the present Congress already fully occupied with other subjects, and having only a month before it will pass out of existence on the 4th of March. There is, therefore, little that can be done now for the establishment of the reforms suggested by Mr. Rea, except by promoting a favorable public opinion.

Our Committee believes that Mr. Rea's recommendations, coming as they do from one who stands at the head of one of the greatest railroad systems in the country and one who has had the broadest experience in dealing with the problems of railroad policy, should receive the approval of all business men. The recommendations are in the interest not merely of the railroads, but of the stability and prosperity of the nation. They represent business statesmanship of the highest order. The wisdom of the recommendations is so self-evident that your Committee does not believe that it is necessary to enter into an elaborate explanation or advocacy of them. We believe that the stamp of the Chamber's approval upon Mr. Rea's suggestions will serve to promote a public opinion that eventually will force their enactment into legislation. Therefore, your Committee recommends the adoption of the following resolution:

RESOLVED, That the Chamber of Commerce of the State of New York strongly approves the constructive suggestions of Samuel Rea, President of the Pennsylvania Railroad, as outlined in his address at the December, 1914, meeting of the Chamber, and that it instructs the Committee to make further study of the problem with the view of specific recommendations to Congress for a more enlightened policy of public regulation of the railroads.

Sale of Upper Berths.

(From the Rock Island Employes' Magazine.)

MANY travelers are prejudiced against upper berths in Pullman Sleepers, and many of our ticket agents thoughtlessly assist in keeping alive this prejudice. This is done, to some extent, by stating to travelers to whom a lower berth cannot be assigned: "There is nothing left but an upper," or, 'I can only give you an upper,' leaving an impression in the traveler's mind that an upper berth is inferior or undesirable.

"Would it not leave a better impression, in case the passenger's wish for a lower berth cannot be complied with, to say: 'The lowers are all taken, but I can assign you a choice upper berth. The rate is twenty per cent cheaper than a lower.' The traveler may at once see that, considering the difference in the rate, an upper berth has perhaps an advantage over the lower. Then a few words of explanation as to the other advantages of the upper may decide the matter favorably with the prospective passenger.

"In the more recently constructed Pullman Sleepers, upper berths are now furnished with protection guards, precluding the possibility of falling out of the berth. Reading lamps are under individual control, doing away with the annoyance of unnecessary light. The ventilation in upper berths is also of the best, and for that reason alone many travelers prefer them.

"As only a limited number of passengers can be accommodated in Pullman Sleepers, every effort should be made to dispose of the uppers as well as the lowers, thereby reducing the demand for extra sleepers. The co-operation of ticket agents towards this end will be appreciated both by the railroad and the Pullman Company."

Railway Notices.

(From the "Electric Railway Journal.")

THE use of public notices on railway property is essential to safe and expeditious service. The wording of these often leaves much to be desired.

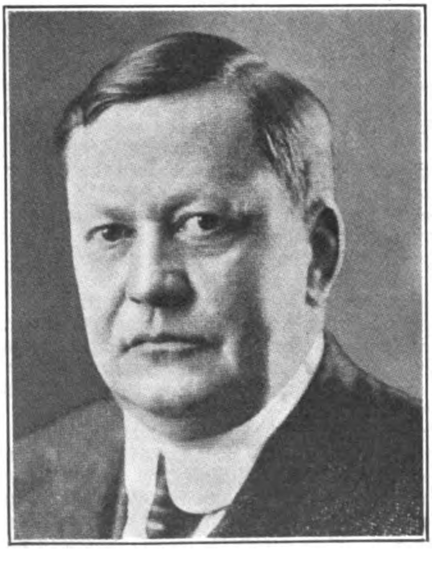
"This way out," "Leave by the front door," "Keep to the right," etc., do not necessarily indicate curtness in the attitude of the management, but patrons would be better pleased, unconsciously perhaps, if the signs were more diplomatically worded. If brevity is sought a simple notice, "Entrance" or "Exit," answers the same purpose and cannot offend the most peevish passenger. The liberal use of the word "please" in the proper places involves little extra cost for lettering and is an effective lubricant in eliminating friction. There are sign-boards upon which it would be out of place or incongruous. "Look out for the locomotive" is none too curt to startle the heedless pedestrian—it suggests the imperativeness of appropriate action. "Watch your step" would be weakened by "politeness." The criterion for notice wording appears to be this: Where the patron is asked to do a favor for the convenience of the company and his fellows a notice should be phrased much as a verbal request would be, with due allowance for brevity. Where the favor is to the passenger, particularly if it relates to his safety, the wording should be chosen primarily on the basis of securing attention.

Personal

Charles W. Hotchkiss.

CHARLES W. HOTCHKISS, who has recently been elected chairman of the Board and of the Executive Committee of the Virginian Railway Company, was born June 19, 1863, at Unadilla Forks, New York.

After having received his education at the West Winfield Academy, Mr. Hotchkiss began his railway service in 1881, as a rodman on construction work of the New York, West Shore and Buffalo Railroad, at Newburgh, New York. Following this initial employment, he became assistant engineer for the Michigan Central Railroad, August 15, 1886, and held that position until May 25, 1895. His next service was as chief engineer of the Chicago Junction Railway, from the last-mentioned date until January 1, 1899, from which date until October, 1905, he was president of the Indiana Harbor Railroad, of which company he was general manager until April, 1906. He was then made general manager of the Chicago, Indiana and Southern Railroad Company and the Indiana Harbor Belt Railroad Company, serving as such until May 1, 1912, when he was chosen president of the Chicago Tunnel Company, the duties of which office he has since continued to discharge.



CHARLES W. HOTCHKISS.

Mr. Hotchkiss is also president of the Richmond Light and Railroad Company; and Chairman of the Board of the Atlantic Coast Electric Railway Company.

He is a member of the Western Society of Engineers, the American Society of Civil Engineers, and the American Railway Engineering Association.

Raymond DuPuy.

RAYMOND DuPUY, who has recently been made president of the Virginian Railway Company, was born in the City of Pittsburgh, Pa., January 4, 1860. He obtained his preparatory education at boarding schools and was later a student at the Georgtown University in the District of Columbia.

In 1877 he entered the railway service as a water boy on what is now a part of the Missouri, Kansas & Texas Railway. He rose to be assistant engineer in 1878 and continues in that capacity with the above named road and the Missouri Pacific Railway, until 1881. From 1881 to 1885 he served as chief engineer and superintendent of the Tioga Railroad, which is now a part of the Erie System. He then became, successively, general superintendent of the Minnesota & Northwestern Railway, 1885 to 1887; general manager of the Chicago, St. Paul & Kansas City Railway, 1887 to February 1, 1888; president of the Leavenworth & St. Joseph Railway, 1891; president of the De Kalb & Great Western Railway, 1895 to 1896; general superintendent of the Chicago Great Western Railway, April 15, 1898 to July 1, 1899; superintendent of the Morris and Essex division of the Dela-

RAYMOND DUPUY.

ware, Lackawanna & Western Railroad, July 1, 1899 to May 1, 1900; general manager, and subsequently vice-president, also, of the St. Joseph & Grand Island Railway, to April 15, 1905. His connection with the Virginia Railway dates from March 15th, of the last mentioned year, at which time he was chosen general manager of that company. In this capacity and as vice-president he has since been in full charge of the company's operations.

William A. Worthington.

WILLIAM ALFRED WORTHINGTON, vice-president and assistant director of maintenance and operation of the Southern Pacific Company, at New York, has been appointed vice-president and assistant to chairman, with headquarters at New York. Mr Worthington was born on June 18, 1872, at Vallejo, Cal., and was educated in the public schools of Sacramento. He began railway work on March 1, 1887, with the Southern Pacific, and has been in the continuous service of that road ever since. He served as stenographer and clerk in the superintendent's office at Sacramento until June, 1888, and then became chief clerk to the engineer of maintenance of way at San Francisco. In October, 1893, he was appointed statistician in the general manager's office at San Francisco, and two years later was made chief clerk of the same office. From October, 1901, to April, 1904, he was executive secretary to assistant to president of the same road at San Francisco. Mr. Worthington went to Chicago in April, 1904, as chief clerk to the director of maintenance and operation of the Union Pacific System and the Southern Pacific Company. In November, 1907, he was appointed assistant to director of maintenance and operation at Chicago and from January 1, 1912, to February, 1913, was assistant director of maintenance and operation of the same roads, with headquarters at New York City. In February, 1913, when the Union Pacific and Southern Pacific were separated under an order of the federal court, he resigned from the Union Pacific and was elected vice-president and assistant director of maintenance and operation of the Southern Pacific Company, which position he held at the time of his recent appointment.

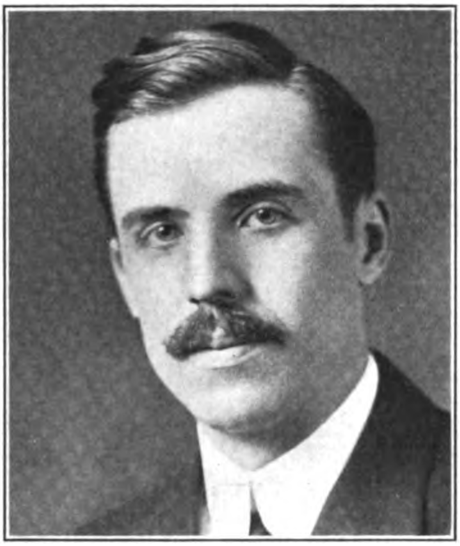
WILLIAM A. WORTHINGTON.

T. F. Steele.

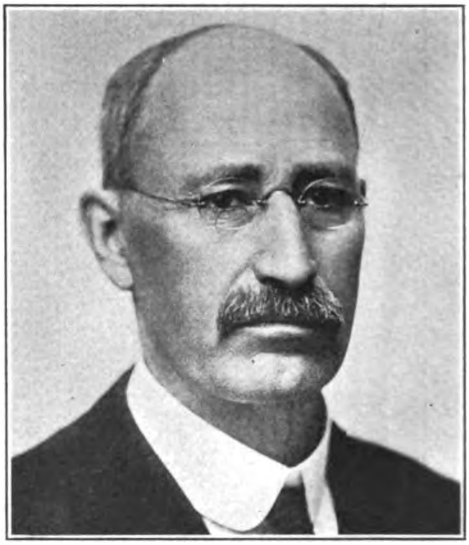
T. F. STEELE, who on February 1st was made vice-president and traffic manager of the Queen and Crescent route, with headquarters at New Orleans, was born September 27, 1856, at Austin, Texas. He entered railway service in 1880, as claim clerk with the Alabama Great Southern Railroad Company at Chattanooga, Tenn. On March 1, 1884, he was made assistant agent for this Company and on April 1, 1886, became soliciting agent. In September of the same year, he was transferred to New Orleans, La., and a year later, to Birmingham, Ala. On November 10, 1891, he was promoted to the position of division freight agent, with headquarters at Birmingham, and in 1894, was made general freight agent. Four years later he was transferred to New Orleans as general freight agent of the roads comprising the Queen and Crescent Route, and in 1909, was made freight traffic manager of the same systems. He was occupying this position at the time of his recent election to the vice-presidency.

Verne M. Alexander.

VERNE M. ALEXANDER, who has recently been appointed assistant to the president of the Chicago and Alton Railroad, was born at Niagara Falls, Ont., November 19th, 1887. After receiving a public school education, he entered railway service as messenger for the Western Union Telegraph Company and Erie Railroad at Lisbon, Ohio, in 1901. He was successively yard clerk, freight receiver clerk and cashier, same place, until February, 1903; February, 1903, to June, 1905, secretary to division freight agent and traveling freight agent, same road, at Youngstown, Ohio; June, 1905, to October, 1905, secretary to assistant general freight



VERNE M. ALEXANDER.



WILLIAM C. ARMSTRONG.

agent, Nickel Plate Railroad, Cleveland, Ohio; October, 1905, to June, 1906, advanced educational course at Central High School; June, 1906, to August, 1909, secretary and cashier of F. L. Fuller & Company, bankers and dealers in municipal and corporation securities, Cleveland, Ohio; during last four months of 1908 associated with the late Tom L. Johnson (then Mayor of Cleveland) in adjusting financial affairs of various companies at Lorain, Ohio; September, 1909, to June, 1912, statistician to B. A. Worthington, first vice-president, general manager and receiver of Wheeling & Lake Erie Railroad; July, 1912, to February, 1915, on staff of president, Chicago & Alton Railroad Company, Chicago, Illinois.

William C. Armstrong.

WILLIAM C. ARMSTRONG, who has been appointed chief engineer of the St. Paul Union Depot Company was born at Marietta, Ia., in 1859. He graduated from the Iowa State College and entered railway service in 1882 as draughtsman for the Iowa and Nebraska Railway. In 1884, he became resident engineer of the Birmnigham, Cedar Rapids and Northern Railway, and in 1887, went to the Sioux Line as resident engineer. The following year, he accepted a similar position with the Great Northern Railway and in 1890, became engineer of track and bridges of the Pacific extension of the Great Northern. In 1893, he left the railway service to join the forces of the Andrews Bridge Company at Spokane, Wash., and two years later, accepted a position with the Toledo Bridge Company at Toledo, Ohio. In 1899, he again entered railway service as resident engineer of the Chicago and North Western Railway Company, and in 1902, became bridge engineer of the same road. In 1905, he accepted the position of superintendent of construction, Missouri Pacific Railway, but the following year went to the Chicago, Rock Island and Pacific as bridge engineer. In 1907, he joined the forces of the Chicago and North Western as terminal engineer in charge of Chicago Passenger Terminal and in 1912, became engineer of bridges of the same road. He occupied the latter position at the time of his recent appointment as chief engineer of the St. Paul Union Depot Company.

Alexander S. Lyman.

ALEXANDER S. LYMAN, the general attorney of the New York Central Railroad, was born in New Orleans, La., in 1860. He is a graduate of the Chamberlain Institute and the New York University as well as the Columbia Law School.

His first work in his professional life was as a clerk in the offices of former Judge Horace Russell, during which employment he was admitted to the bar in June, 1886. For four years he remained in Judge Russell's office, leaving to enter the offices of Davies & Rappalo, which later became Davies, Short and Townsend and then Davies, Stone & Auerbach.

It was during this period that he acquired his intimate knowledge of elevated railway litigation. In 1897 he went into partnership with Col. Charles H. Blair and Charles Henry Phelps, the firm style being Blair, Phelps & Lyman. Among the notable cases handled by Mr. Lyman during the existence of his partnership, was the defense of the New York Central in the Park Avenue Viaduct damage cases, which involved some fine law points, the conduct of which brought much favorable attention to Mr. Lyman.

In 1898 he acted as counsel to the receiver of the Brooklyn Elevated Railroad Company, handling the land damage claims and personal injury suits, gaining high reputation for his skill and justice.

In April, 1899, shortly after the Brooklyn Rapid Transit Company acquired the properties of the Brooklyn Elevated Railroad Company, Mr. Lyman was given full charge of the Claim Departments of the consolidated roads and successfully reorganized it.

ALEXANDER S. LYMAN.

Until 1901 he remained at the head of that department, but about that time the claims for damages against the elevated lines had become so great in volume that he was invited to represent the company in defense. This he did and his action was so vigorous that he soon cleared the calendar, much to the advantage of the company. The following year he resigned from the law department of the railway company and again entered general practice in partnership with Col. Blair, with whom was associated Anderson Price, under the firm name of Blair, Price & Lyman.

This firm continued until 1905, when Mr. Lyman was tendered and accepted a position on the staff of the New York Central Law Department, as assistant to the General Attorney and so remained until January 1, 1908, when he was promoted to be General Attorney of the road.

C. B. Breed.

PROFESSOR C. B. BREED, who has just been elected president of the New England Railroad Club is Associate Professor at the Massachusetts Institute of Technology. He was born in Lynn in 1875, graduated from M. I. T. with the class of '97, and made assistant the next year, remaining in that position three years. He became instructor in 1907, assistant professor in 1910 and associate professor in 1911, which rank he now holds.

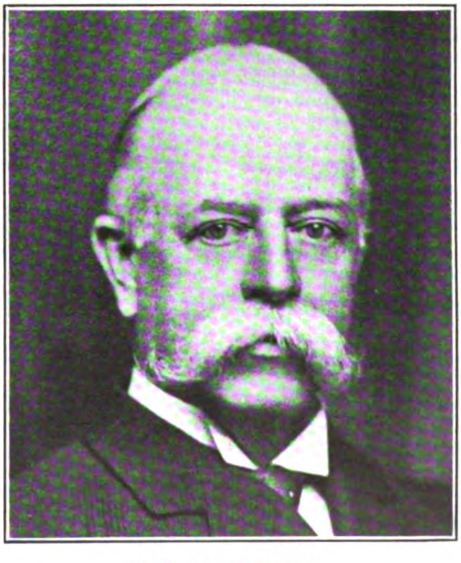
His especial study has been that of grade crossings and the elevation of railroad tracks and for a number of summers was concerned in the re-location of the railway systems in Chicago. He has been known in the East recently through his relations with the cities of Lynn and Taunton, for which he has been consulting engineer while in Worcester he was called upon for opinions concerning the railway track improvements. The great work of re-location, just completed at Lynn was under his supervision.

C. B. BREED.

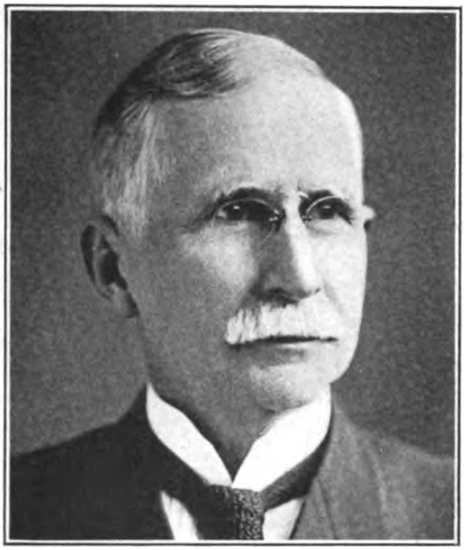
In his educational work together with Professor Hosmer, he has issued text-books, elementary and advanced which are considered standard.

Joseph B. Hutchinson.

JOSEPH B. HUTCHINSON, assistant to vice-president of the Pennsylvania Railroad, has been retired under the pension rules of the Company. He was born in Bristol, Pa., on March 20, 1844, and after a preparatory education entered the Polytechnic College of Pennsylvania, graduating in 1861. After his graduation he entered the Delamater Iron Works in



J. B. HUTCHINSON.



Joseph T. Richards.

New York City in the spring of 1862, and continued there until the fall of that year, when he passed an examination by the Board of Inspectors in the same city, and received a certificate as third assistant engineer.

In June, 1863, Mr. Hutchinson entered the service of the Pennsylvania Railroad Company as rodman on the Mifflin and Centre County Railroad. Within two weeks thereafter, under leave of absence, he volunteered in the army, served throughout the Gettysburg campaign, and was honorably discharged in September, 1863.

Mr. Hutchinson returned to the railroad service as rodman in the Construction Corps on the Western Pennsylvania Railroad, in September, 1863. In August, 1864, he was promoted to assistant engineer of that road, and in May, 1865, to assistant engineer of Maintenance of Way and Construction. In 1868 he was transferred to the Columbia and Port Deposit Railroad as assistant engineer, and remained there until January, 1869, when he was made assistant engineer on the Butler Extension. In March, 1869, he returned to the Columbia and Port Deposit Railroad, as assistant engineer in charge of that road and the Columbia Bridge.

In July, 1870, Mr. Hutchinson was promoted to principal assistant engineer of the Columbia and Port Deposit Railroad, serving in that capacity until July, 1877, when he was appointed assistant superintendent of that road. He was promoted on January 1, 1879, to superintendent of the Lewistown Division; July 1, 1881, to superintendent of the Frederick Division; December 8, 1884, to superintendent of the Altoona Division; January 1, 1890, to superintendent of the Western Pennsylvania Division; January 1, 1891, to superintendent of the Maryland Division of the Philadelphia, Wilmington and Baltimore Railroad, Baltimore and Potomac Railroad and Washington Southern Railroad.

On March 1, 1803, Mr. Hutchinson was made general superintendent of Transportation, Pennsylvania Railroad System, and on February 10, 1807, general manager. On January 1, 1903, he was appointed to the newly created position of assistant to the second vice-president of the Pennsylvania Railroad Company, and on the same date to corresponding positions on the Northern Central Railway, the Philadelphia, Baltimore and Washington Railroad and West Jersey and Seashore Railroad Companies. Upon the election of Mr. Pugh as first vice-president on March 24, 1909, Mr. Hutchinson was advanced with him as assistant to the first vice-president, and on March 3, 1911, by a change in the organization, he became assistant to the fifth vice-president.

When the practice of designating the vice-presidents numerically was discontinued, on May 8, 1912, Mr. Hutchinson was appointed assistant to the vice-president in charge of Real Estate, Purchases and Insurance.

Joseph T. Richards.

JOSEPH T. RICHARDS, consulting engineer of maintenance of way of the Pennsylvania Railroad, who has recently been retired under the pension rules of the Company, was born near Rising Sun, Cecil County, Md., on February 12th, 1845. He was educated largely at the West Nottingham Academy, in Cecil County, Md.

Mr. Richards entered the service of The Pennsylvania Railroad Company in August, 1869, as Rodman and Transitman, during the construction of new shops at Altoona. On June 1st, 1870, he was appointed supervisor from Harrisburg to Newport, in which position he continued until October 16th, 1871, when he accepted the position of chief engineer in locating and constructing minor railroads in Maryland. After completion of the Kent County Railroad he was made superintendent, auditor and secretary. On March 1st, 1873, he became chief of locating engineers for several surveys over the Allegheny Mountains for an outlet for the Bedford and Bridgeport Railroad.

On May 25th, 1874, Mr. Richards accepted the position of mining engineer with the Cambria Iron Company. He returned to the service of The Pennsylvania Railroad Company on March 1st, 1875, as supervisor of Division No. 6, of the Main Line, extending from Newport to Granville. On March 20th, 1876, he was promoted to assistant engineer, Maintenance of Way, of The Pennsylvania Railroad. From June, 1877, to March, 1883, he was principal assistant engineer of the United Railroads of New Jersey Division, and from March, 1883, to June 24th, 1885, assistant to the chief engineer. On the last-mentioned date he was appointed by the president, assistant chief engineer.

On March 1st, 1893, when a change was made in the organization, Mr. Richards became engineer of Maintenance of Way; on June 1st, 1903, chief engineer of Maintenance of Way; and on June 16th, 1913, he was made consulting engineer, Maintenance of Way. During his continued service as the head of this department of the railroad he has largely influenced the standards established for track, stations, bridges and operating yards.

In addition to his duties as head of the Maintenance of Way Department of the Pennsylvania Railroad System east of Pittsburgh and Erie, Mr. Richards, by appointment of the president, was made chairman of several committees for working out the plans for the New York and Washington Stations and Yards. In this capacity he has given much attention to the study and development of railroad stations, yards and terminals, and has largely influenced the working plans as adopted for the New York, Long Island and Washington terminals.

John W. Renner.

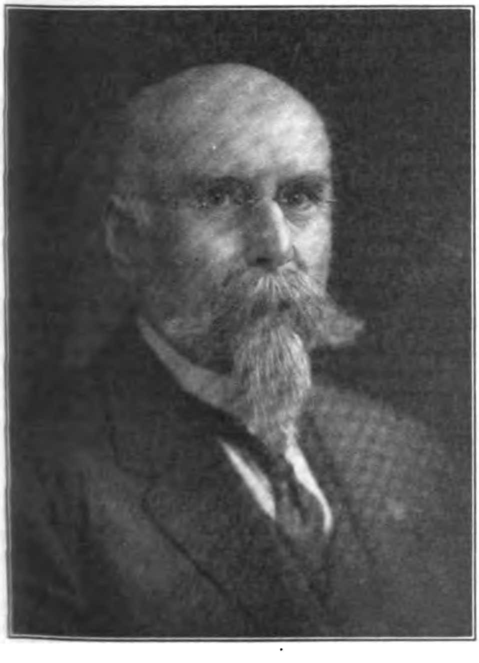
JOHN W. RENNER, who for nearly twenty-four years has been comptroller of the Pennsylvania Company and of the Pittsburgh, Cincinnati, Chicago and St. Louis Railway Company, has been placed upon the retired list.

During his long service Mr. Renner enjoyed the friendship of seven Presidents of the Pennsylvania System, namely, Mr. John Edgar Thomson, Mr. Thomas A. Scott, Mr. George B. Roberts, Mr. Frank Thomson, Mr. Alexander J. Cassatt, Mr. James McCrea and Mr. Samuel Rea.

Mr. Renner was born at Petersburg, Huntingdon County, Pennsylvania, January 1, 1845, of German ancestry. He received his education in the public schools of Pennsylvania, principally in Blair County. He entered the service of the Pennsylvania Railroad Company, in the Maintenance of Way Department at Altoona, Pa., on July 1, 1861, and was transferred to the Motive Power Department on September 1, 1862.

On January 22, 1883, Mr. Renner was appointed assistant comptroller of the Pennsylvania Company and of the Pittsburgh, Cincinnati, Chicago and St. Louis Railway and was made comptroller May 1, 1891. He has held this office, in addition to that of Auditor and membership in the boards of directors of a number of auxiliary companies, to the date of his retirement.

As a token of friendship and of the high esteem in which he is held by those with whom he has been in daily association on the Lines West, Mr. Renner, on his last day of active service, was presented with two handsome loving cups—one from the executive officers and the other from the officers of the Accounting Department. The clerks of the Accounting Department presented him with a beautiful chair.



JOHN W. RENNER.

Alexander P. Gest.

ALEXANDER P. GEST, special agent of the New Jersey Division, has been appointed secretary of the Association of Transportation Officers of the Pennsylvania Railroad East of Pittsburgh and Erie, to succeed the late Alphonse Feldpauche.

Mr. Gest was born in Philadelphia, February 2, 1853. He was educated at the classical school of Dr. J. W. Faires, the University of Pennsylvania and the Rennsellaer Polytechnic Institute, graduating from the latter institution in 1874, with the degree of Civil Engineer.

Mr. Gest entered the service of the Pennsylvania Railroad in 1875, under William H. Brown, Chief Engineer. After serving in several minor positions, he was on March 1, 1882, appointed supervisor at Huntingdon, Pa. On March 1, 1883, he was promoted to Division Engineer, Monongahela Division, and on October 1st of the same year he was transferred to Division Engineer of the Pittsburgh Division. On January 25, 1886, he was transferred to Division Engineer, New York Division. On September 1, 1889, he was promoted to Superintendent of the Bedford Division; on January 1, 1891, transferred to Superintendent of the Frederick Division, and on January 1, 1893, became Superintendent of the Belvidere Division.

On January 1, 1912, Mr. Gest was appointed to the newly-created position of Special Agent of the New Jersey Division.

OBITUARY.

John W. Addis, formerly nineteen years superintendent of motive power of the Texas & Pacific, died at Marshall, Texas, on February 25th. He was born on March 13, 1851, at East Liberty, Pa., and after learning the trade of machinist entered the shops of the International and Great Northern, at Palestine, Tex. In 1882 he went to the Marshall shops of the Texas and Pacific, and left that road to become general foreman at the Tyler shops of the St. Louis Southwestern. He was transferred later to the Pine Bluff shops, of which he had charge, and was then for about four years master mechanic at the Gouldsboro shops of the Texas & Pacific. About 1892 Mr. Addis succeeded A. G. Douglass as superintendent of motive power and rolling stock of the Texas & Pacific at Marshall, and remained in the service of that road until June, 1911.

G. D. Bacon, formerly from 1892 to 1905 general agent of the passenger department of the Chicago, Rock Island & Pacific, with offices at Cincinnati, Ohio, and St. Louis, Mo., died at Eustis, Fla., on March 4th, aged 70 years.

W. L. Bisbee, formerly superintendent of the Second Division of the Houston & Texas Central, died on March 4th, at Houston, Tex., aged 63 years. He was retired from the active service of the company on January 1st last, at his own request, due to ill health, at that time having served the company continuously for 41 years.

W. W. Borst, formerly receiver for the Denver, Lakewood and Golden, died at his home in Denver, Colo., on February 22nd, aged 76 years. Mr. Borst, entered railway service in April, 1867, with the Union Pacific. From September, 1871, to September, 1879, he was superintendent of the Denver and Rio Grande, and was then consecutively general agent of the Atchison, Topeka and Santa Fe and superintendent of the Western Division, returning to the Denver and Rio Grande in November, 1883, as superintendent of the First Division. He remained with the Rio Grande until December, 1888, as superintendent and assistant general superintendent. In November, 1889, he became superintendent of the Denver Consolidated Electric Company and from August, 1896, to 1905, was receiver for the Denver, Lakewood & Golden, retiring from active service on the latter date.

Frederick L. Brooks, formerly claim agent of the Chicago, Indianapolis & Louisville, died at his residence in Chicago on March 3rd, aged 56 years.

H. H. Brand, commercial agent of the Atlantic Coast Line, died on February 27th, at Sumter, S. C.

Marvin J. Brundige, signal supervisor of the Buffalo, Rochester & Pittsburgh, died at the Warsaw Hospital, Warsaw, N. Y., on February 21st, following an operation for acute appendicitis.

Charles W. Campbell, city engineer of St. Joseph, Mo., died January 6th at his home in St. Joseph, aged 56 years. Early in life Mr. Campbell superintended the construction of the line from St. Joseph, Mo., to Des Moines, Iowa, now the Chariton branch of the Chicago, Burlington & Quincy Railroad. He was later with the Missouri Pacific Railway.

N. C. Collier, who was for many years a director of the Nashville, Chattanooga & St. Louis, died on February 6th, at Murfreesboro, Tenn., at the age of 82.

P. Dowling, general roadmaster of the Delaware, Lackawanna & Western, at Scranton, Pa., died in that city on March 6th.

James C. Fargo, who was president of the American Express Company from 1881 until June, 1914, died on February 8th, at his home in New York at the age of 86. He was born at Pompey, N. Y., and when he was 15 years old entered the employ of Wells & Company, at Buffalo, N. Y. He afterwards went to Detroit and Chicago in the service of the same company, and later became agent and Chicago manager for the firm's successor, the American Express Company. In 1866 he was appointed general superintendent and manager at New York, and in 1881, was elected president of the same company. Mr. Fargo resigned as president of the American Express Company on June 16, 1914, after a service of 70 years spent in the express business. He had been president also of the Westcott Express Company, the National Express Company, Merchants' Despatch Transportation Company and a director of the Chicago & North Western Railway. He is survived by two sons, William C. Fargo, who is secretary, and James F. Fargo, treasurer of the American and of the National express companies. An appreciation of Mr. Fargo, which was issued by the American Express Company, at the time of his retirement from the presidency of that company, contained the following: "Mr. Fargo's connection with the company has been exceptional for the length of service, in an absolute and unceasing devotion to its interests and affairs, and has been marked by a high degree of ability in the management of the company's complex and extensive business."

S. E. Flanagan, superintendent of the New Orleans & Northeastern at New Orleans, La., died at that place on February 6th, at the age of 51.

Nathan H. Heft, formerly electrical engineering adviser of the New York, New Haven and Hartford, died on February 25th, at Bridgeport, Conn.

Frederick N. Hawley, superintendent of the Allegheny & Bradford Divisions of the Erie at Salamanca, N. Y., died on March 4th, at Bradford, Pa. He was born on September 5, 1865, at Scottsville, N. Y., and began railway work in June, 1879, as a telegraph operator on the Erie, and remained in the service of that road ever since. He then served consecutively as despatcher, chief despatcher, passenger trainmaster and division trainmaster until May, 1912, when he was appointed division superintendent of the same road.

W. D. Herring, general claim agent of the Sunset-Central Lines, with headquarters at Houston, Texas, died suddenly on February 22nd, aged 57 years.

L. C. Hill, horticultural agent of the Gulf, Colorado & Santa Fe Railway, with office at Galveston, Texas, died at Rogers, Ark., February 2nd, aged 58 years.

J. J. Hughes, roadmaster of the St. Louis Southwestern at Mount Pleasant, Texas, died suddenly on February 26th.

G. S. James, trainmaster of the Seaboard Air Line, at Tampa, Fla., while riding on footboard of a switching engine in the yards at Tampa on February 25th, was thrown off the engine and fell on the track, receiving injuries from which he died. The footboard struck a guard rail at the entrance of a bridge.

Charles N. Lee, who formerly was connected with the Chicago, Burlington & Quincy for 45 years, and for 20 years was superintendent at Hannibal, Mo., died on January 30th, at Kansas City, Mo., aged 83 years.

George Carter McNally, superintendent of car service of the Elgin, Joliet & Eastern, died on February 22nd, at his home in Joliet, Ill., aged 51 years.

Frederick W. Morse, formerly and for many years general passenger and freight agent of the Montpelier & Wells River, died on March 7th, at Montpelier, Vt., at the age of 70.

C. C. Murdough, traveling passenger agent of the Chicago, Milwaukee & St. Paul Railway, with office at Cincinnati, Ohio, died in that city, February 20th, aged 58 years.

Richard Morgan, general manager of the Savannah & Northwestern Railway, with office at Savannah, Ga., died in that city, February 8th.

Peter J. Nichols, formerly from June, 1891, to July, 1898, general superintendent of the Nebraska Division of the Union Pacific, and subsequently superintendent of the Denver Union Depot Company, died recently at the home of his daughter in Indianapolis, Ind., aged 85 years.

Hiram R. Nickerson, formerly vice-president of the Mexican Central, died on March 8th, at North Wayne, Maine. He was born on December 13, 1853, at North Wayne, and began railway work in February, 1872, as a messenger on the Atchison, Topeka & Santa Fe. He subsequently served on the same road consecutively as telegraph operator, station agent, brakeman, conductor, train despatcher, trainmaster, division superintendent and general superintendent of lines east of the Missouri River until 1888. Then for six years he was general superintendent of the entire system. In June, 1894, he was appointed assistant general manager of the Mexican Central, and from the following December to May, 1899, he was general manager of the same road. Mr. Nickerson was then elected vice-president and general manager. He continued as vice-president until 1907.

Norman B. Ream, a director in many railway companies and other corporations, died February 9th at the Presbyterian Hospital in New York City. Mr. Ream was born in Somerset County, Pa., November 5, 1844. He was connected with the following corporations: Vice-president and director of the Central Safety Deposit Co.; director of the Baltimore & Ohio R. R., the Brooklyn Heights R. R. Co., the Brooklyn Rapid Transit Co., the Chicago & Erie R. R. Co., the Chicago & Alton R. R. Co., the Chicago, Burlington & Quincy R. R. Co., the Cincinnati, Hamilton & Dayton, the Cumberland Corporation, the Erie Railroad, the First National Bank of Chicago, the Franco-American Financial Association, the International Harvester Co., the Metropolitan Trust Co. of the City of New York, the Mount Hope Cemetery Association, the National Biscuit Co., the New York Susquehanna & Western R. R. Co., the Pennsylvania Coal Co., the Pere Marquette R. R. Co., the Pullman Company, the Reliance Company, the Seaboard Air Line Ry., the Securities Co., the Sussex Realty Co., and the United States Steel Corporation; and a trustee of the New York Trust Co.

Morton Riddle, general manager of the Florida East Coast at St. Augustine, Fla., died at that place on March 4th. He was born in 1869 at Petersburg, Va., and began railway work on April 1, 1887, and was consecutively rodman, instrument man and resident engineer on the Norfolk & Western and the Charleston, Cincinnati & Chicago, now a part of the Carolina, Clinchfield & Ohio, until May, 1890. He then entered the service of the Atlantic Coast Line as roadmaster, and in November, 1901, he was appointed superintendent. He was later assistant chief engineer, until 1905, when he was promoted to general superintendent of the same road at Jacksonville, Fla., leaving that company in February, 1914, to go to Florida East Coast as general manager at St. Augustine.

M. L. Robbins, formerly from 1892 to 1908, general passenger agent of the Houston and Texas Central, died in Houston, Texas, on March 3rd, at the age of 64.

Adolph B. L. Scrivner, formerly assistant general superintendent of the National Lines of Mexico, died at Laredo, Texas, on March 1st, aged 39 years.

Thomas Swinyard, president of the Dominion Telegraph Company, died on February 25th, in New York City, at the age of 83. He was born in England, and for a time served on the London and North Western. In 1862 he went to Canada as general manager of the Great Western Railway, and subsequently was active president of the Detroit & Milwaukee, both now included in the Grand Trunk System. He also served as the Dominion Government Commissioner for organizing the Prince Edward Island Railway and for a time was vice-president of the New York, Ontario and Western. In 1897, he represented the Dominion Government in the arbitration suit with the Canadian Pacific.

W. I. Trench, division engineer maintenance of way of the Baltimore & Ohio at Baltimore, Md., died in that city on February 7th, aged 36 years. Mr. Trench was graduated from the Sheffield Scientific School in 1902, and immediately began railway work on the engineering corps of the Baltimore & Ohio Southwestern. He was advanced to assistant division engineer in April, 1906; was promoted to division engineer of the Ohio Division in 1908, and had been division engineer of the Baltimore and Ohio at Baltimore for the past three years.

James M. Warner, general manager of the Chicago & Western Indiana, who died in Chicago on February 8th, was born on a farm near Syracuse, N. Y. He received a common school education and commenced railway work with the Erie as an office boy, with which road he remained for several years, filling consecutively the positions of telegraph operator, despatcher, chief despatcher and trainmaster of the Delaware Division. He was then trainmaster for the Terre Haute & Florida (now a part of the Vandalia), at Decatur, Ill., and in 1888 he became master of transportation of the Belt Railway of Chicago. Subsequently he was appointed trainmaster of that road and the Chicago & Western Indiana until 1892, when he was made superintendent of those roads. In 1905, Mr. Warner was appointed general superintendent, and in 1908 he was promoted to general manager. Mr. Warner for many years was a member of the Committee on Relations between Railroads of the American Railway Association, and for several years also was chairman of the General Superintendents' Association of Chicago.

Thirteenth Annual Dinner of the Traffic Club, of Pittsburgh

MEMORIAL HALL, Pittsburgh, on the evening of March 5th, provided the setting for an unusually brilliant function. The occasion was the thirteenth annual dinner of the Traffic Club of Pittsburgh. The guests included some of the Nation's most prominent men, both in public and business life. The addresses referred largely to the paternalistic tendencies of the present Administration and the danger of such influence upon business and the Nation's prosperity. The principal speakers of the evening were W. L. Clause, president of the Pittsburgh Plate Glass Company, and Senator John W. Weeks, of Massachusetts. In elaborateness of arrangement and detail and in the distinguished personnel of the hundreds of guests, the banquet may be said to have eclipsed all predecessors.

The banquet hall had been transformed into a veritable Japanese garden, literally rioting in flowers. The dais on which was placed the table for the club's officers and its special guests, was arranged as a wisteria arbor with wild grape vines, evergreen smilax, pink wisteria, roses, cibodium and variegated bamboo and pandanus veitchii, the table itself being adorned by large candelabra. The tables for the guests each bore a low Dresden-effect French basket filled with spring flowers, and the rear of the hall was arranged as a pergola. The ceiling and wall decorations consisted of smilax, wisteria, climbing roses and pink poppies.

Following the banquet, President E. F. Lalk opened proceedings by delivering a short address of welcome to the guests and referring briefly to the Traffic Club and what it stands for. In his reference to the general business situation, he had the following to say:

"On this occasion it is customary for the President to say something about the enormous tonnage from this territory. I have thought of that considerably and have decided to touch on this subject very briefly, and all I will ask you to do, if you can, is to please remember the large round figures quoted last year by our industrial president; they are easy to remember; I think they will answer for this year very nicely. If the statistician has compiled 1914 figures, I do not think they will ever be published. We all know that business in this district and in all parts of the United States has been depressed. What we would like to know is why. I have had some opinions on this subject, and once thought that I would express them to-night; but during the last two months I have heard so many different opinions from men who know so much more than I do about conditions and the causes, it has left my mind so confused I have no opinion of my own left, except this: Business will improve, because we have reached the bottom. That is my only reason for that."

President Lalk then introduced the toastmaster for the evening, Mr. George A. Blair, assistant freight traffic manager of the Chicago, Milwaukee and St. Paul Railroad. In accepting the honor, Mr. Blair spoke in part as follows:

"Your very cordial reception is characteristic of the spirit of co-operation of this Club, and I take it as such and thank you. Pittsburgh's importance as a traffic center and the personnel of this organization have made these annual dinners memorable events. You have been addressed in the past by gentlemen prominent in international affairs, statesmen, diplomats, financiers, captains of industry, theologians, eminent educators, prominent editors, humorists and railroad executives. Their addresses have typified the period. To-night's program is no exception. The two speakers and their subjects are characteristics of

PRESIDENT E. F. LALK,

Who delivered a short address of welcome to the guests of the Traffic Club.

GEORGE A. BLAIR,

Who acted as toastmaster at the annual dinner.

HON. JOHN W. WEEKS,
Senator from Massachusetts.

WILLIAM L. CLAUSE,
President, Pittsburgh Plate Glass Company.

your annual dinner. Pittsburgh with its commerce and industry is as sensitive to economic and business conditions as any place in the country and in fact in the world, and at no place would these addresses be more appreciated, more appropriate or more timely."

Mr. Lalk then introduced Mr. William L. Clause, president of the Pittsburgh Plate Glass Company, who spoke upon the Federal Trade Commission and the various reasons which have been advanced for the creation of such Commission. That part of Mr. Clause's address which refers more particularly to the railway industry, is herewith reproduced.

EXTRACTS FROM MR. CLAUSE'S ADDRESS.

"At the outset it seems proper to ask, Is it wise that we should control our industries in the same way the Interstate Commerce Commission now controls our railroads? And is it for the best interests of the country that the future developments of our industries shall be restricted in the same manner that the Interstate Commerce Commission is now restricting the activities of our railroads?

"The conditions are not parallel; and any line of action predicated upon the assumption that they are parallel is fraught with the greatest possible dangers, to the future industrial and commercial development of our country. The railroads are public in character, or at least, quasi-public; while all except Socialists recognize that our industries must remain private enterprises if we are to escape the rocks of Socialism. The building of our railroads is largely completed, so far as the creation of new competing lines is concerned. Their future lies along the line of adding trackage, rolling stock, terminals and their general facilities, rather than the creation of new competition, yet in industry the cry of the hour is still for new and greater competition. Our railroads do not create commerce; they simply transport it. The new Commission will be dealing with the sources of commerce, a vastly more complicated and delicate problem than that with which the Interstate Commerce Commission has had to deal.

"Conditions circumscribing the activities of our railroads are now such that very few can earn more than a bare five or six per cent on the capital invested, even though that capital does not represent any water. Yet it requires a long time to develop a new section of country traversed by a new line of railroad. During that long period of development their earnings were very meager and often insufficient to pay the cost of operation and interest on the bonds, hence many of them went through bankruptcy. Could any group of men to-day be induced to build a trunk line railroad for the purpose of competing with those already in existence, with all of the risk of losing their money, knowing from the beginning that at best they would have a long period of unprofitable operation, and that conditions created by the Interstate Commerce Commission would permit them in the end to earn a mere five or six per cent on their money? With the knowledge of these facts before us, does anyone suppose that if the conditions now imposed by the Interstate Commerce Commission had always existed our railroads would ever have been built by private enterprise? Is it not reasonable to assume, then, that under such conditions the Government would have been forced to build our railroads in order to develop the country? Would that have been a favorable and desirable condition? Everyone at all familiar with political methods knows that if our Government had been forced to build the railroads our development and our progress would have been greatly hampered and retarded. Rarely has the Government undertaken anything (except in the building of the Panama Canal) that it has not been dilatory in recognizing and dealing with its problems. It is a notorious fact that in so simple a problem as the building of a post-office there is frequently such a long delay that the new building is nearly outgrown before it is completed. Pittsburgh knows something about how the Government builds post offices. The railroads (Government built) would have lagged behind and retarded progress instead of leading the advance of our development. It is, therefore, a matter of great good fortune to the country that our Interstate Commerce Commission and existing restrictive conditions were not created until the rail transportation facilities of our country had been largely provided for. Please do not infer that I am necessarily contending that because our railroad building is largely completed, it is fair or wise to restrict them as much as is now being done. I simply wish to show that even if it is fair and wise so to restrict them that our industrial development has not yet reached the stage where it is wise to follow the same policy.

Does any intelligent person believe that if a Federal Trade Commission should exercise the same control over industry that the Interstate Commerce Commission holds over the railroads, and that ultimately the profits of industrial corporations are reduced to a mere five or six per cent, as they have been with the railroads, any one would be rash enough to start new business enterprises for the purpose of entering into competition with corporations already thoroughly established? An intelligent or experienced man would know that five or six per cent is all that might be earned by any proposed net investment; he would know, furthermore, that the starting of any new company is always fraught with uncertainty of management, and that in every case such a company must pass through a long period without profit, and perhaps with loss, until the organization shall be so perfected that its output can be produced at a minimum cost. Such an experience is inevitable, and is necessary to enable it to compete with other producers already established. It seems certain that under rigid control all corporations, and particularly the so-called trusts, now in existence, can feel more secure against new competition.

If it should be argued that the Federal Trade Commission law does not contain any provision restricting the amount of profit which any industry may be permitted to enjoy, the answer must be that neither does the Interstate Commerce law contain any provision fixing the percentage of profits of the railroad, yet that has become the determining factor in the conduct of the Interstate Commerce Commission.

An unwise and unfortunate public opinion is generating a belief that the individual, or groups of individuals (the corporations) must solve the creative industrial problems and foot the bills, no matter what the expenses or the losses may be—even though their reward should be largely taken away from them. If such an attitude once became thoroughly established, it must seriously restrain, if it does not completely destroy, individual initiative, and this would virtually paralyze all progress, present and future. Surely we are skirting the borderland of Socialism. This brings us to the consideration of the third reason that has been advanced for the creation of a Federal Trade Commission—it is said that it will help to stem the tide of Socialism. On the contrary, its rigid enforcement will surely push conditions along toward Government ownership of industries. Such may be the sequence, just as Government ownership of railroads will presumably be the ultimate sequence of the existing conditions largely created by the Interstate Commerce Commission. While the percentage of citizens who now favor Government ownership of railroads is small, there is a large element among railroad men who recognize that it must be the next step, unless a greater latitude of individual management is left to them.

At least one of the troubles with business is that new projects are not being pushed—new operations are being suspended—because of lack of confidence in the future and the atmosphere of uncertainty and suspicion with which it has been surrounded. Nothing has ever thrived in such an atmosphere. Business is being too much interfered with by legislation. There have been 65,000 laws passed in the United States in the last five years, many of which are useless and many more are vicious—like the full crew law—which some of our states are now repealing, and which I hope Pennsylvania will also repeal. We are specializing too much in our legislation, instead of depending on fundamental law. In concentrating our legislative vision on many of these problems, we have overlooked the larger horizon of fundamental justice. In many cases we have overlooked the motives which control human activities and have run counter to fundamental principles. What the country wants is not more legislation and restriction, but more confidence and liberty. Liberty to attack the unsolved problems of industry in the full confidence and assurance of our fellows and our Government that the successful may enjoy the just fruits of their endeavors. This measure is not necessarily progressive—it will become reactionary and repressive unless the Commission recognizes the delicacy of the problems involved.

One of the dangers that surround the control exercised by commissions is the constant demand for increased authority, which, if carried too far, results in a large measure of actual management rather than regulation, and that, too, without the technical or practical training necessary to intelligently meet the problems confronting them, and without responsibility to either the stockholders or the public, which have no power to either elect or recall them. Responsibility should always accompany management.

One peculiar difficulty about this problem confronting the public and the Federal Trade Commission is, that they will never know how far the development of new enterprises has been interrupted. Interference with business already established quickly becomes a matter of public knowledge, but not so concerning enterprises that are unborn.

It is not to be denied that certain evils have accompanied our rapid, industrial development which have caused corporations to be looked upon with suspicion, but business conditions in general are sound, and these evils are the exception rather than the rule. Must we burn down the house in order to roast the pig.

I trust, therefore, that it is not presumptuous for a layman to suggest that the Commission's attitude toward corporations should be one of cooperation rather than antagonism—of confidence rather than suspicion. That it will appreciate that business cannot thrive in an atmosphere of suspicion; that it must be "a Commission broad-gauged enough to realize that business thrives best when its processes are interfered with as little as possible; a Commission, in other words, contenting itself with preventing business abuses and leaving the direction of business to business men," permitting them to feel that the privacy of their affairs will not be violated, that they will be permitted to enjoy the legitimate fruits of the hazards they take in attacking and solving the great problems that still confront every line of manufacture, as well as many other fields yet undiscovered—keeping in mind that any interference with the legitimate profits of corporations on the general theory that they should be reduced to a common level, such as now exists in the earnings of our railroads, will be disastrous to the creation of new competition and new enterprises; in fact, a Commission which realized that they are dealing with the sources of industry and commerce, many of which are yet to be created—a vastly more complicated, sensitive and vital problem than was ever undertaken by any commission. With such a commission we may escape the serious consequences that are sure to follow any unwarranted interference with business. New capital will not seek investment in an atmosphere of interference. Now, if, in addition to escaping these dangers, the Commission can pilot business through the maze of vague legislation and conflicting judicial decisions, and over the rough seas of unrestricted and destructive competition, and calm these troubled waters so that a man may be on speaking terms with his competitor without the fear of violating the Sherman law, existing evils can easily be corrected and it will become a helpful and constructive factor in our industrial and commercial life."

Mr. Clause was listened to with closest attention and the spontaneous applause which greeted many of his utterances left no doubt that his audience were in thorough sympathy and accord with his views.

The final speaker of the evening was the Honorable John W. Weeks, United States Senator from Massachusetts. After listening to a highly eulogistic review of his career on the part of the Toastmaster, Senator Weeks spoke, in part, as follows:

EXTRACTS FROM SENATOR WEEKS'S ADDRESS.

Your President has said that he has come to the conclusion that he does not know what the trouble is with business. Quite likely that is true of every man, and yet I think we can follow directly and distinctly the result of Government interference in business and demonstrate that it has brought about hesitation, doubt and all the things that go with those two qualities in the mind of every business man. And there can be no good business anywhere, whether there are large crops, low rates for money, and ample foreign balance,—there can be no good business unless there is cofidence, unless there is a certainty that a man may look ahead, invest his money and expect to get a reasonable return for it.

The difficulty has been that we have all been impressed with these people who thought that everything was wrong, and almost everyone of them had a remedy for it, and nearly everyone of them believed that the remedy was to go to the Government and get legislation which would correct the things which were essentially private and personal. These good people—many of them are good people—these good people have in many cases advocated two things that were directly contrary and opposite. One is this: They advocated a broader democracy in our Government. They wanted legislation by the people, the initiative and referendum, and all that goes with the initiative and referendum, and at the same time they have been advocating that the Government should, by legislation similar to the Trade Commission bill, take over the conduct of business, the regulation of business, putting into the hands of commissions, powers which those who framed the Constitution never dreamed of, and powers that are not in many cases defined or refined, but in many cases are of such character that it gives the commissioners a despotic position, which cannot bring about anything but distress in trade and business generally.

Very few people comprehend the rapidity with which we have been rushing into state Socialism during the last ten or fifteen years. Just stop and think of the things that have been done. Some were done wisely perhaps in some respects, others of them extremely unwisely. The Post Office Department, for instance, or take the banking affairs of the country. We have been regulating the national banks for many years on the theory that they were the fiscal agents of the Government. Now we have established a Postal Savings Bank under the Government, and we have established the Reserve Board, putting in the hands of a commission very great powers. I want to say that I voted for the bill which provided for this Reserve Bank Board. If the Board operates within the limits intended in the law, and if it is wise in its methods of procedure, I believe that on the whole it will supplement our banking system and be beneficial, and yet I recognize the fact that it may be extremely harmful. We have passed pure food laws and meat inspection laws, and all kinds of conceivable methods of proceeding against or about or regulating corporations.

Now we do not know what the result is going to be in many of these cases, but we have had some results which indicate to us that there must be a limit to Government regulation and that the Government going into business in opposition to individual or corporate efforts will be extremely harmful.

There has been a proposal, as many of you know, to regulate the pay of railroads for carrying the mail. It has been an easy cry for the demagogue to say that the railroads were receiving more than they should, that if they were paid what they should be paid, then the Post Office Department could be easily self-sustaining. And yet it is noticeable that the increased cost of transporting mail by a railroad has only increased fifty per cent in the last fifteen years while the receipts of the service and the other expenses have increased two hundred and fifty per cent. But in the law which it was attempted to put on the statute books in connection with the appropriation bill this year was a provision making rates not exceeding the rates which were in the provisions of the bill,—*not exceeding.* That meant that the Postmaster General under present conditions, or under any conditions which appealed to him, could reduce the pay of railroads, for carrying the mails and compel the railroads to bear the burden of a deficit that might appear in the Department, and some Postmaster General—I don't say the present one would—some Postmaster General would say "that would be a popular thing to do"; the railroads are not popular and I will cut their pay and appeal to the people, and I believe that the people will sustain any such action." Fortunately that did not become a law. I say fortunately for you and fortunately, I believe, for the country, because I do not believe that any right minded man, whatever may be his opinions about the mangement of railroads or corporations generally, can wish any one to perform any service for the Government which is not suitably rewarded.

Reference has been made to the Interstate Commerce Commission. Now, I believe that a commission of that character was necessary and is necessary. The railroads of the country are public service corporations, and it is proper that there should be, considering their character, some governmental control, at least of some of the functions which they perform. I won't go into detail as to my theories about that, but let me call your attention to this fact: That the Sherman Anti-Trust Act has been, in my judgment, of such uncertain character, the decisions of the court has been so different at different times, the policies followed by state administrations as well as state commissions and the Interstate Commerce Commission have been so different, that it has seemed to me impossible that the railroads could know where they were at, at any particular time. I noted that last year there were nearly fifteen hundred bills introduced into state legislatures regulating railroad corporations in forty-two different states, and ninety-nine per cent of those bills were restrictive in their character. Now everybody knows, you know better than most people, that the railroads of the country are having great difficulty in financing themselves for their ordinary requirements; that the balance sheet last year showed a loss of one hundred and twenty-five millions of dollars over the year before for all the railroads of the country. We cannot go on that way very long without having the railroads of this country in the hands of a receiver. You can just as well think of a man running a foot race with hardening of the arteries, and running a successful race, as to expect the business of this country to be prosperous with such restrictions on capital and operation that the public service corporations cannot get the capital to advance business effectively and efficiently. And for that reason there should be a limit to the activities and powers of the Interstate Commerce Commission.

Then the Interstate Commerce Commission deal with large units of business. I do not believe in monopolies. I do not think that a monopoly—and a railroad is a natural monopoly, however, I am not putting railroads in that class —I do not think a monopoly which imposes unreasonable prices on a people should be allowed to stand, and yet my examination of such cases convinces me that, except in very rare instances, the competition which any business will receive, sooner or later will exert itself sufficiently to make the larger concern charge a fair price or drive it from the business.

Now we have seen these decisions that have been coming along down in the last twenty years. Take the first Trans-Missouri case. When the Supreme Court handed down its decision it put the corporations of the country in such a position that it was necessary for them to consolidate. They could not form a pool any longer, and therefore we have seen all of these consolidations which have been going on, most of which did go on within three or four years of that time, so that we may probably say that if these combinations have been inimical to the best interests of the people of this country which I deny in most cases, that their organization was directly due to the passage of the Sherman Anti-Trust Act, and in that decision in the Trans-Missouri case where the decision was five to four, the minority handing down its opinion about unreasonable restraint of trade has now become the majority in the Standard and Tobacco cases. So that we have seen these changes going on, but in the meantime many men engaged in large business, who in their management always honestly wished to conduct their business within the provisions of the law, who have paid large amounts of money to their attorneys not for the purpose of being told how they could evade the law but for the purpose of being told how they could keep within the provisions of the law,—we have seen many men indicted, humiliated in the eyes of the public, when they supposed that they were law-abiding citizens.

Now Mr. Clause has been discussing this Trade Commission. We were kept in Washington all last summer until well into the fall because it was necessary to pass such a bill as that. I believe, in general terms, that it cannot prove anything else than harmful to the best interests of this country. It was necessary to pass it at once, and yet the President has been five months, nearly six months, in obtaining a commission composed of five men to conduct the affairs which will come under the control of the Commission. About the five commissioners, I do not wish to say anything unfair, but, without investigation of them, I am prepared to say that there are probably not five men in this room whose business experience would not better qualify them to pass on the business affairs of this country than the five commissioners. Now if we found business men for commissioners who were all-wise, who knew all about all kinds of business, who had an absolutely judicial temperament, we might possibly afford to abrogate our duties of citizenship and turn over to them the conduct of our business affairs. But you cannot find them. In the first place, they do not exist. If they did, they would not exist at the rate of $10,000 a year. In the navy they have what they call "Boards" to pass on various matters of importance and of little importance, and it is a common saying in the service that boards are long, narrow, wooden things. Now, I do not mean to say that all commissions connected with the Government are that, or all bureaus deserve that characterization, but I do say that when we turn over to commissions or to bureaucratic offices the great powers which are carried in that law, we are taking a step which in my judgment is almost inevitably going to bring disaster to this country.

It costs us a million eight hundred thousand dollars to maintain the Interstate Commerce Commission, having jurisdiction over twenty-three corporations. How much is it going to cost and how many people are going to be employed if these commissioners, having jurisdiction over three hundred thousand corporations, are going to conduct their business in the same way? There are fifteen hundred experts connected with the Interstate Commerce Commission to-day. It would require an army of men, and if we don't look out every taxpayer in this country will be carrying a government official on his back, as was done in the days of the French Revolution when there was a government official for every four citizens of France.

Now one other point relating to this particular subject which I wish to call to your attention which has direct connection with the remark I made when I commenced my fragmentary discourse, and that is the question of the valuation of railroads. That was going to be the thing that was going to reform the method of making rates. I think it has been pretty well demonstrated that valuation is a very poor basis on which to make a rate for a public service corporation, but in any case when we started out it was only going to cost eight or ten millions of dollars, according to the testimony of the men who were going to do it, to make the valuation of railroads of the country; and now Mr. Prouty, who now has charge of that valuation, has recently testified that it will cost fifty millions of dollars, thirty-five of which will be paid by the railroads and fifteen millions by the Government. And you all know, because you know the subject better than I do, that when the valuation is made, it is not going to be any basis for making rates after all, and when the valuation is made and completed, it will be so long in the making that they will have to commence over again to make another valuation because the valuation will change.

Now there is one other thing I want to mention, and that is the shipping bill with which we have just been dealing. It is said by the press and others that the minority in the Senate have been engaged in a filibuster, and it has been indicated that filibusters are pretty bad things anyway. I want to admit that when one man stands up and defeats a bill by talking, as might be done in the United States Senate, it is not an inspiring spectacle. But when two thirds of the Senate, and more than two thirds, if they could have gone into a booth and voted their honest judgment about the shipping bill would have voted against it, then there is justification for killing that legislation, and we have killed it. Now the reasons we killed it were these: There were three principal reasons. In the first place it might have involved us in foreign complications, and there is not a man in this room or in this city or in this country who wants this country engaged in war. We should do everything we can to avoid such a possibility. In the second place that was urged as an emergency measure, and everybody knows that it would not have been effective as an emergency measure. Why? Because every neutral ship was engaged in commerce and the cost of that ship would have been almost prohibitive, if we could have found anyone who would have sold us ships. It was the purpose to buy certain ships when the law was passed, without any question, but in any case the law would have been ineffective on account of the rates being so high, because there has been so much more offering than there have been ships. When a tramp steamer goes into a port—you don't want to confuse ocean rates and your rates—when a tramp steamer goes into a port where there is fifty per cent more tonnage than there is cargo, the rates go down right away, and when that tramp steamer goes into a port where there is twice as much cargo as tonnage, then the rates go up. When they go into a port where there isn't anything offered, they go in ballast to some other port where there are shipments. That is the way the ocean business is done. No government could operate in competition with the privately owned and operated steamers, but more than that, the rates have not been high entirely because of the great shipments which we have made, which have been referred to, but they are high because of the dangers, because of the high rates of insurance, because of the inadequacy of the unloading facilities on the other side. At one time there were forty-seven ships lying in the harbor of Genoa for that reason. In England the men who worked along the shores have gone to the war and there aren't enough men to load the ships, even if there were dock facilities. And in any case there would have been results from this act which would have disappointed its sponsors, but more than anything else because of the possibility of putting the Government into the carrying business. That I, and I enjoy the same judgment as many other Senators on that subject, am unalterably opposed to. I do not propose to have anything to do with setting an example which will put this Government into the transportation business either on land or on sea.

My time is exceeded and I want to say just this along this line: that there is only one instance that I can find of such operations in the world where there have been reasonably good returns, and that is in the state-owned railroads of Prussia, where the returns are reasonably good,—not better than the railroads of this country provide, but they are reasonably good. In every other instance if you will take the trouble to look them up, and compare the expenses where there are privately owned and operated transportation lines in competition with government lines, you will find the privately owned lines are more economically managed, more efficiently managed, and the results are better in every way for the employes and the owners and the public as well.

If you will give me just a moment more, I will read a summary I once dictated on the subjects I have been discussing to-night.

"If there is force in what I have said it follows that the Government is not an economical but an expensive business agency, that commission or bureaucratic methods are likely to be harmful to business activities and extensions, that there is a tendency on the part of bureau officers to reach out for more power even if they do not assume authority which the law does not give them, that the red tape incident to government methods is not conducive to the best interests of any business and may be instrumental in bringing it, as in the case of the railroads, to the verge of bankruptcy and that legislation similar to the Trade Commission bill places all business of any considerable volume in a straight jacket which will retard its growth and increase the expense of operation without any corresponding benefits.

Monopolies should not be tolerated unless they are of the character of the railroads or those incident to a patent, in which case they should be controlled. Consolidation should be permitted where the public interest will not be effected adversely by so doing. Competition in ordinary business should be encouraged and generally speaking it may be depended on to work out the best results for not only the producer but the consumer. The common law will provide means to prevent the operations of those who use fraudulent or oppressive methods. Punish the individual who violates the law but do not punish at the same time the entire trade with which he is connected, its business, employes and the community which it serves. Remove all other handicaps from business, give it real freedom, make efficiency rather than government supervision and restriction its dominating influence. Such intelligent action will mean a new era which will be at the same time a better era. By following this course we will insure the retention of our own markets for our own producers and a fair opportunity to invade other markets; reverse this policy and we may be sure that we cannot gain the latter and are likely to gradually lose the former."

The American Commerce Association

NOTE.—The following paragraphs deal with a new national association of traffic men which has recently been organized at Chicago. The object of the organization is to set standards of efficiency for employers and employes, as it is believed that the present tremendous waste of time and money in traffic work, demands employment of trained men. The RAILWAY WORLD is in entire sympathy with this movement, as it believes it will not only develop more harmonious relations between those who employ and those who operate the railways, but will serve to more fully inform the business men of the country regarding rate matters and thus enable them to more intelligently and economically employ our transportation agencies. In the future there will be a new department in the RAILWAY WORLD devoted to the traffic efficiency clubs of this Association, located in the various cities of the country. Under this heading practical railroad and industrial traffic matters will be discussed.

A NOTEWORTHY development in connection with the activities of the American Commerce Association has been the appointment of Mr. Thomas D. Fitzgerald, formerly with the claim department of the Chicago and Alton Railroad, as manager of the Consultation Department of the Association.

Mr. Fitzgerald began his railroad career with the Toledo, St. Louis and Western Railroad in the local office at Toledo, Ohio. After about one year's service he was promoted to the position of assistant cashier wihch position he resigned to go to Chicago. This was shortly after the World's Fair. He was then employed by the Grand Trunk Railroad as bill clerk, tracing clerk, and later had charge of the team traffic in the freight house. He was later employed by the Pittsburg, Cincinnati, Chicago and St. Louis Railway, Chicago and North Western Railway, Chicago and Eastern Illinois Railroad, and Wabash Railroad as bill clerk.

THOMAS D. FITZGERALD,
Manager, Consultation Department, American Commerce Association.

The first real rate experience which he received was with the Illinois Central Railroad in the freight claim agent's office. He left the service of the Illinois Central to become chief rate clerk in the Chicago, Rock Island and Pacific Railway claim office. After leaving the Chicago, Rock Island and Pacific Railway, he was employed by the Erie Railroad in the general freight agent's office as tariff clerk and later was given charge of the claim department, passing on all claims referred to the traffic department for ruling.

His next position was in the manager's office of the Lehigh and Wabash Dispatch, as percentage rate and claim clerk. He went to the Wabash assistant general freight agent's office when the Fast Freight Lines were merged with the Wabash, and held the position of chief rate clerk in charge of quotations, also attended meetings of the various rate committees of which the Wabash Railroad was a member. He resigned this position to become chief rate clerk in the Chicago and Alton Railroad claim office. Later he went to the Chicago Great Western Railroad as chief rate clerk in charge of the revising and claim rating departments but soon returned to the Chicago and Alton claim office as chief rate clerk, which position he resigned March the 6th to accept the position as manager of the Consultation Department of The American Commerce Association.

Mr. Fitzgerald has spent his life with tariffs and rates. He is considered by many as one of the most thoroughly informed men in the United States on the application of tariffs and their interpretation between points in this country and foreign ports.

APRIL MEETINGS OF TRAFFIC EFFICIENCY CLUBS.

The following program has been arranged for the April meetings of the Traffic Efficiency Club:

APRIL 1.

32. Industrial Railroads—Speaker to be selected.
33. Application of Tariffs between and from points in the Central Freight Association Territory to Interstate Points (See Docket, p. 39).
34. Publicity and Legislative Committee Report.
35. The Work of the Interstate Commerce Commission—Speaker to be selected.

APRIL 15.

36. Traffic Department Efficiency—Speaker to be selected.
37. Application of Tariffs between Points in Illinois, Upper Peninsula of Michigan, Iowa, Minnesota, and Wisconsin, and Other Interstate Points (See Docket, p. 45).
38. Moot Interstate Commerce Commission Case.
39. Question Box Committee Report.

Milwaukee Traffic Efficiency Meeting.

Members of the Shippers and Receivers Bureau and of the Milwaukee Traffic Club met in the Club Rooms of the Merchants' and Manufacturers' Association, Milwaukee, Wis., on March 2d, to listen to an address by Thomas D. Fitzgerald, manager of the Consultation Department of the American Commerce Association, formerly with the claim department of the Chicago and Alton Railroad, on the subject: "Application of Tariffs from Milwaukee to Principal Shipping Points in the United States."

Mr. Fitzgerald in his remarks pointed out when through rates apply, when combination rates must be used, and the tariffs which named the rates. As the tariff is the heart of the rate problem, his remarks were very highly appreciated. The important features of his address are as follows:

"It is impossible," said Mr. Fitzgerald, "to actually compute freight charges without a knowledge of tariff applications. The number of tariffs in effect in the United States approximate 480,000, therefore, it can be seen how necessary it is to know what particular tariffs apply upon any given shipment between two points as there are often many factors which are specified in the tariffs, which must be taken into consideration in computing the legal freight charges.

"Not long ago a certain shipper made a shipment of potatoes from Newberry, Michigan, to Chicago, Ill. In order to compute the legal rate on this shipment accurately, it is necessary to know that there are two scales of rates in effect between the points. One scale is based on the Western classification and the other on the Official classification. This is because it is necessary for the lines handling business on the west side of Lake Michigan to publish rates on the basis of the Official classification rating, in order to meet east side competition.

"Chicago, Milwaukee and St. Paul Railway Tariff 10000-A, I. C. C. B-2289, is governed by the Western or the Official classification whichever makes lower on this traffic. Under the Western classification, potatoes in sacks takes the third class rating L. C. L. or a rate of 48 cents per hundredweight, while under the Official classification, potatoes take the fourth class L. C. L. rating or a legal rate of 28 cents per hundredweight.

"The use of the Western classification would make an overcharge of 20 cents per hundredweight. It is obvious, therefore, that it is necessary to know the application and interpretation of the tariff in this case.

"In making a shipment of horses from Chicago to Newberry, Mich., either the Western or Official classification may also be used whichever makes lower, but in this case the Western makes the lower rate, while in the case above the Official made the lower rate. The minimum for one horse under the Western classification is 2,000 pounds at the first class rate. For two horses the minimum is 3,500 pounds at the first class rate, or 75 cents per hundred, making a total charge for the two horses of $26.25. Under the Official classification rating for this same shipment, the first horse would be charged on the basis of 5,000 pounds at the first class rate, while the additional horse would be charged for at 3,000 pounds at the first class rate, or a total weight of 8,000 pounds at 60 cents per hundred, making a total charge of $48 for the two horses, or an overcharge by use of the Official classification of $21.75.

"On a shipment billed as junk from Denver, Colo., to Chicago, Ill., a claim was filed some time ago for an alleged overcharge of $67. The articles were classified in the claim as junk under the Western classification. There was nothing in the billing which would determine the nature of the shipment. It consisted of scrap copper and brass. By referring to Trans-Missouri Tariff No. 11, it was found that the rate on junk at the time the shipment moved would not apply on scrap copper and brass, with the result that the claim was declined and $67 was saved to the railroad."

Mr. Fitzgerald then proceeded to give illustrations how shipments should be rated from Milwaukee to various points in the United States. He furnished examples of the proper methods to be employed in shipping goods from Milwaukee to Carolina territory, Southeastern territory, Mississippi Valley territory, to points in Mississippi, Louisiana, Tennessee, Kentucky, Ohio River points, Arkansas, Texas, Oklahoma, New Mexico, Oregon, Utah, Colorado, Montana, Kansas, Nebraska, South Dakota, Wyoming, Wisconsin, Illinois, Iowa, Minnesota, Missouri and many other points.

Mr. Fitzgerald's remarks left no doubt in the minds of his audience regarding the difficulty of properly interpreting freight tariffs and the necessity for expert knowledge in order to procure the most satisfactory results.

The Interstate Commerce Commission and Its Rate Decision

By WILLIAM A. ROBERTSON, OF THE NEW YORK BAR.

IT was with an unfeigned sigh of relief that the world of business learned last December that the Interstate Commerce Commission had granted the petition of the railroads and allowed an increase in freight rates. Business men generally breathed more freely when they realized that the greatest industry in the country, next to agriculture, was once more assured of a chance to live and grow. They were too pleased to be overcritical, or to reflect that a change of two votes on the part of the Commissioners would have reversed the entire result, and made the outlook for the New Year extremely grave. Hope and gladness displaced for the moment all other feelings.

While undoubtedly the Commission's decision was encouraging it should be scrutinized with an effort to understand the mental attitude of that body throughout the recent proceedings that have terminated favorably to the roads. To do this properly, it appears necessary to go back to the original application of 1910-11, where the roads were defeated, and their desired advance in rates was denied. That denial came as a surprise to many both in and out of the railway field, as did also the decision of July 29th last, which gave only partial and unsatisfactory relief. By considering the three proceedings, a fuller realization can be had of the present standing of the transportation industry of the United States in the eye of the law. Attention will be called to a few of the most important and fundamental considerations only, avoiding many questions of great, though minor, interest.

First. *The Excessive Importance which the Commission Attaches to the Valuation of Railroad Property as a Basis for Rates.*

It is impossible to read the various opinions of the Commission in these rate-advance cases without being impressed with the extraordinary stress which the Commission lays upon the proposition that rates should be based—in large part at least—upon the value of the property employed. Note the following:

"Were it possible to determine the exact amount of money which has been put into these properties, the amount of return which has been paid up to the present time, the degree of prudence with which the property has been constructed and operated, certainly the investment would furnish *a very satisfactory basis* for arriving at an equitable return."—In re Investigation in Official Classification Territory, 20 I. C. C. 243, at 258; Feb. 22, 1911.

"Under recent legislation by Congress the Commission is now engaged in ascertaining the original cost, so far as possible, and the reproduction cost of all the railroads in the country. The work is but just commenced, and no general results can be made available for several years. If the information were at hand at this time, it would doubtless clear away many points of obscurity in the case; for the *reasonableness of the return enjoyed by these carriers can not be measured accurately without a more exact knowledge of their property investments.*"—The Five Per Cent Case, No. 5860, July 29, 1914.

"As previously noted, there is no testimony tending to show the cost of reproducing these properties. It is plain that a physical valuation would introduce into the calculation a new element which might lead to a different conclusion. * * * * This Commission has several times urged Congress to authorize a reproductive valuation of those railroads subject to federal jurisdiction."—In re Investigation in Official Classification Territory, No. 3400, 20 I. C. C. 243, at 305; decided February 22, 1911.

These excerpts make it clear, if it was not already so, that the Commission leans strongly to the idea that rates should be regulated to a large degree by the value of the investment If such a view is to prevail, it should be a matter of grave concern to American business men as well as to railroad owners, for it will mean that, in future, rates are to be made in an entirely different manner from anything that has obtained in the past. More than this, rates of carriage by land will be fixed without regard to competing rates of carriage by water.

It is manifestly impossible to make water rates with any reference whatever to the value of the investment; and it is well known that, as an actual and every-day fact, they are never so made. The Panama Canal is now open and the transcontinental railroads are obliged to face the competition of water-borne traffic between the Atlantic and the Pacific. Moreover, the Federal Government is doing all in its power to stimulate commerce upon inland waterways. Suppose it succeeds on a great scale, and manages to create much heavier business upon the Ohio and Mississippi rivers and elsewhere, than now exists. Will not the railways have to meet such competition without regard to the value of their own investment, or else lose the business in whole or in part? Or take actually existing cases of rail-lake-and-rail rates and lake-and-rail rates. Who believes that it is feasible to base these upon the amount of the investment, so as to apportion a particular rate to any one single commodity? And so, too, in the case of goods moving for export and import—it is impossible to seriously suppose that these commodities could move satisfactorily under rates that were made upon the basis of the value of the investment, or that it would even be possible for a rate-maker to take such an item into account. Take also the case of American railroads which must move freight in competition with rates offered by Canadian roads. Evidently the value of the American investment could have little or nothing to do with solving the problem of how to get business and hold it away from the Canadian lines.*

Bearing these things in mind as well-known and uncontrovertible facts, is it not disturbing to find our National Commission, our "select jury to pass upon the reasonableness and justice of railroad rates,"—we quote from the opinion of Commissioner Lane in the Western Rate Advance Cases of February 22, 1911,—clinging so tenaciously to a rule of action to which there would evidently have to be as many exceptions as adherences?

In saying this, we are not unmindful of the rule of the Supreme Court in Smyth v. Ames,[1] as to the right of a railroad to earn a *fair return* upon the just value of the property employed. But, obviously, this is intended as a mere rule of law to indicate the limit below which returns should not fall. It can hardly be applied as a general economic guide for the regulation of rates. There are far too many elements of uncertainty and unsatisfactoriness connected with it to make it possible to use it in any such manner. Moreover, if the United States is to continue a live and expanding country, its industries can not be made to live and grow by any pre-arranged rule or method. No other line of business in the land, whose activities are at all varied, is attempted to be managed on any such basis. No one thinks of applying such a rule to farming or manufacturing or the sale of merchandise. And,

*Since this was written, the Commission itself has handed down a decision which allows the transcontinental roads to charge less on certain commodities from Eastern points to the Pacific than to intermediate points, so as to meet the competition of the Panama Canal.

[1] 169 U. S. 466.

while the business of transportation differs from these in certain important respects, it is altogether like them in that it is immensely varied and complex. This complexity is fully realized and admitted by the Commission itself, in the following extract:

"We are dealing here with a difficult problem, involving multitudinous facts and an infinite variety of modifying conditions, which make the establishment of principles and the framing of policies a matter of slow evolution."—In re Investigation of Advances in Rates by Carriers in Western Trunk Line, Trans-Missouri, and Illinois Freight Committee Territories, February 22, 1911, 20 I. C. C. 307, at 379.

"It concerns us that we shall have the advantage of our varied resources * * * that coal and lumber shall go where fuel and trees are scarce; and that, in short, our products and our people may be as mobile and as fluent as conditions may permit. Therefore, it may not answer public needs to always measure rates by any fixed standards, but the deviation from standard should be made primarily with an eye to public advantage, rather than to the volume of freight which a carrier may secure."—Ibid, p. 355.

Moreover, investments in railroad property, especially new lines, have always been subject to much hazard, uncertainty and loss.[2] Under such conditions as these, prices of transportation should no more be made to conform absolutely with any arbitrary rule of return, than should the prices of wheat and corn.

These and kindred thoughts bring us to the second point in our reflections, which is that a body clothed with such very extensive powers as are possessed by the Interstate Commerce Commission, and evidently so prone to adopt a more than questionable basis, or rule of action, should not be the final arbiter in questions of rate-advances, but should be subject to some easy and expeditious form of review. Our second point may, therefore, be tersely stated thus:

Second.—*The Danger of Clothing a Small Body of Persons with Vast and Ill-Defined Powers without the Safeguard of Appeal or Review.*

The Act of 1910, which clothed the Interstate Commerce Commission with the power to suspend or prohibit advances in freight rates, absolutely failed to provide any plain, adequate or complete method of review for the correction of even the most serious errors of the law or fact which the Commission might make. There is, indeed, the possibility of an application to the courts for an order restraining the Commission from prohibiting a proposed increase of rates: but, in actual practice such a remedy is more theoretical than real. In order to have any standing before the courts in such a proceeding, it would be incumbent upon the railroads to show that the contemplated increase in rates was absolutely essential to enable them to earn a "fair return" upon their investment. In other words, they would be obliged to prove that the order of the Commission denying the increase was confiscatory. It might well happen, however, that the order of the Commission which was sought to be restrained had not gone quite to that extent, although it might be unwise, impracticable and full of hardship. In that event, the courts would probably decline to interfere But even if the Commission's order was confiscatory, the task of entering a court of equity and proving so difficult and elusive a proposition on behalf of a number of great railroad systems, aggregating many thousands of miles, is almost beyond the bounds of an ordinary judicial proceeding. A "fair return" is just about as vague and elastic a phrase as is the well-known expression, "just and reasonable." A "fair return" may run all the way from five per cent, or perhaps less, up to ten per cent or fifteen per cent, according to individual judgment. In a speech before the Traffic Club of Pittsburgh, on March 28, 1912, Mr. Commissioner Prouty said that a five per cent dividend was, in his opinion, sufficient for a road to pay to its stockholders, with a 2½ per cent addition to go into the value of the property. And he expressly observed:

"I am not suggesting for a moment that the income from railroad investment will compare with that in manufactures or in commerce, for it ought not to."[3]

Others would adopt different standards, according to their varying judgments and ideals.

But whatever notion a court might entertain as to what was or was not *reasonable*,—and we have had suggestions and adjudications from them on this point—the burden of proving by ordinary rules of evidence the immense mass of facts and compilations involved in such a question is simply stupendous; and the opportunities for an active opponent to pick flaws and detect weak spots, and thus defeat the whole proceeding are many and tempting. A remedy demanding such an immense outlay of trouble and expense is nearly useless. It has been successfully invoked against state commissions, touching rates within the borders of a state. To use it efficaciously in the case of a number of interstate roads, operating over a wide sweep of territory, would be immensely more difficult.

We grant rights of appeal in almost all law suits, even those involving small sums of money. Yet here is a question of overshadowing importance, affecting not only the rights of the roads themselves, but also those of tens of thousands of investors, and of the general prosperity and industry of the nation as a whole. This is left to the decision of seven gentlemen, and, save for the remote possibility of action by Congress itself, there is no way of reviewing or reversing what they may do. Is this wise? It is certainly un-American, for it is not the policy of our people, and never has been, to confide immense discretionary powers to a few individuals, whose judgment shall be final and conclusive. To be sure, we leave much to our courts, but we have been careful to make ample provision for appeals and writs of error. It is disquieting to reflect that, had two Commissioners joined with Messrs. Harlan and Clements in their dissent from the December decision, the railroads would still be in one of the most serious dilemmas imaginable, and business in general would be responding in sympathy. Clearly, we should establish some tribunal with ample powers of review. We have narrowly escaped a very grave disaster. We should be warned against a worse fate in the future. A word to the wise is sufficient.

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[2] The records of early railroad building prove that capital is not likely to be risked in new enterprises without the speculative possibility of a larger return than can be obtained from more secure investment. The encouragement given by the State and Federal Governments through land grants and other subsidies to the early railroads was a matter of necessity rather than choice.

American Railroad Economics, by A. M. Sakolski, p. 87.

[3] The Railway Library and Statistics, 1911, by Slason Thompson, p. 84.

In conclusion, it may be said that it is impossible, after reading the opinions of the Commission, to fail to perceive that the decision of such a question as the advance of freight rates is next door to actually legislating. It has long been settled that the making of a freight rate is a legislative, not a judicial, act. A perusal of the Commission's opinions will show clearly that the Commission is, for the most part, considering and discussing questions of policy, such as would come before a legislative committee. To be sure, it earnestly disclaims that it is doing more than applying to the facts before it certain rules of law framed by Congress. It says:

"Congress has laid down a few rules. These rules we are attempting to apply."—In re Investigation of Advances in Rates in Western Trunk Line, etc., Territories, Feb. 22, 1911, 20 I. C. C., p. 307, 379

But it may well be asked, What rules has Congress laid down? It has enacted that rates must be "just and reasonable," but what does that really mean? Almost nothing, for as already explained, these terms are so elastic that they become "all things to all men" They afford no real rule of action, but leave practically everything to the personal views of those who are authorized to decide. In the absence of an appeal from the decision, it results that seven gentlemen in the City of Washington are the real legislators of the American people on the highly important subject of advances in freight rates. In theory, this is not so; but in practice it is something so much like it that it is impossible to point out any vital difference.

If this be true, there are two questions which inevitably press for consideration. First, has not Congress delegated to the Commission a power which it alone can constitutionally exercise, viz., the power to make a rate? It has done more than simply clothe the Commission with power to find a certain fact. It has gone much further. It has allowed the Commission to do very nearly anything it sees fit under all the circumstances, without indicating any clear rule of action. How does that differ from actually legislating.

Secondly, if the Commission is acting rather as a legislative committee than as a tribunal of law, why may it not take cognizance of many facts of general knowledge without requiring formal proof? As Mr. W. M. Acworth, that very high authority and friendly critic of our railroads, recently observed:

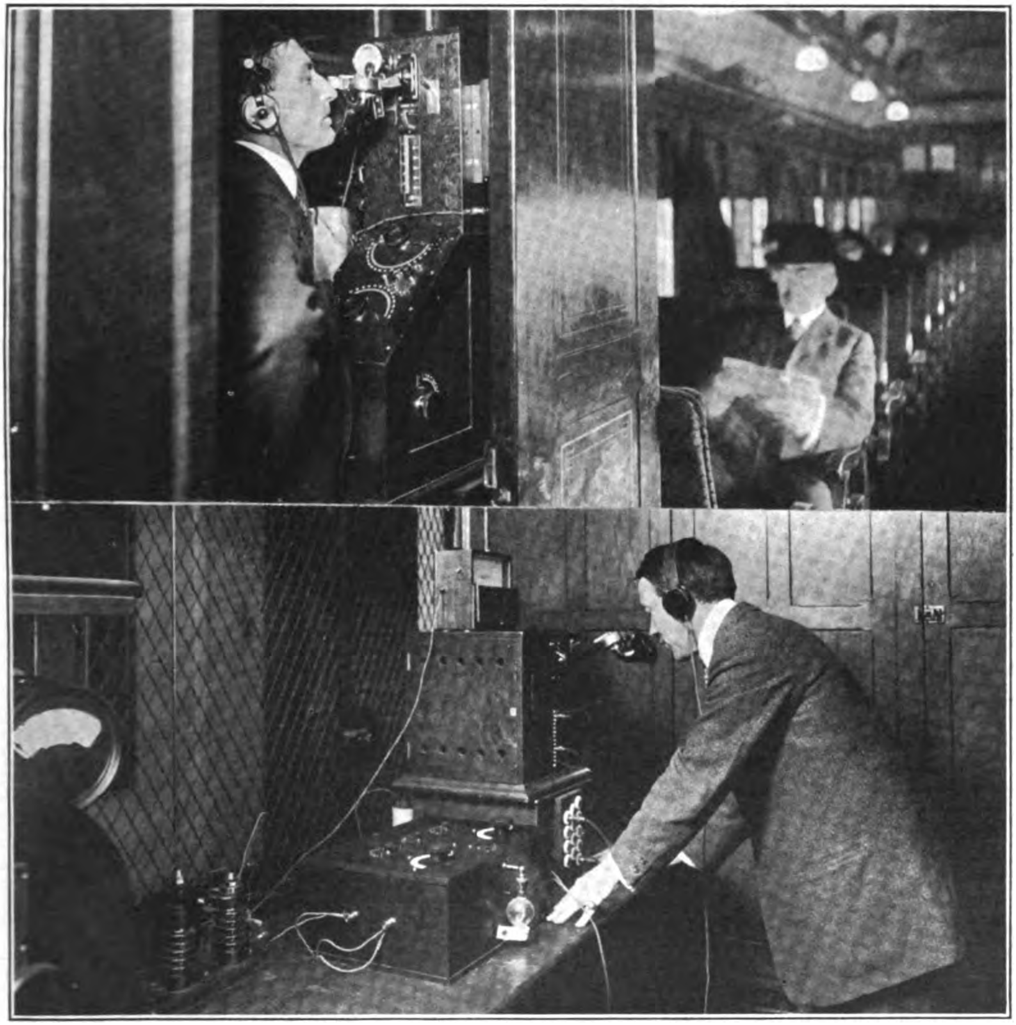
"And so, it seems to me, the Commission might have taken judicial cognizance of the elemental facts of the railway situation. We all know, for example, that American railways have been built and operated hitherto with an economy unknown in older countries; but that of recent years the standard of construction, and the standard of operation have been rapidly raised, implying the expenditure of vast additional capital and a much larger proportion of income. We know that freight rates, the lowest in the world, have gone down rather than up of recent years. We know that operating costs have increased faster, owing to increased prices, than could possibly be offset by increased economies. We know, to put it in the broadest possible way, that it can not in the long run be possible, in a country where $1 purchases less than almost anywhere else in the world, to give the European standard of service at the old American standard of price. We—including the Commission—can not help having all these things at the back of our heads, and 1,000 pages of statistical tables do nothing more than confirm—though they do abundantly confirm—our pre-existing impression."

Could the Commission recognize these facts, it might give relief far more speedily, more effectually, and with more general satisfaction than it has usually been able to do in the past. But because the Commission has failed to follow such a course, the country has been forced to wait for precious months, while business has halted and confidence has hung in the balance. The Commission has indeed given relief at last, but it acted so slowly as to rob its acts of very much of their value. The last decision came with far more speed than the earlier ones, but it was given under the tremendous pressure of a great war, and with the knowledge that the public sentiment of the country was overwhelmingly in support of the railroads, and that the President of the United States was thoroughly friendly to their position. In short, there was a combination of foreign and domestic industrial and political forces, the like of which will probably never occur again. In the face of all this, a divided Commission has felt able to afford a very moderate measure of relief. Do such facts encourage investors and business men? Who cares to guess where the roads would have been had the general situation been less lurid and spectacular?

Wireless Telephoning From Moving Trains

By L. B. Foley, Superintendent, Telephone, Telegraph and Wireless, Delaware, Lackawanna and Western Railroad.

Last year the Lackawanna Railroad Company, after successful experiments in telegraphing without wires to and from one of their Limited trains, decided to attempt to substitute wireless telephony for the telegraph if that should prove feasible. The purpose of this was to obviate the necessity for adding a Morse telegraphist to the regular train crew. The superintendent of telegraphs of the Lackawanna, Mr. L. B. Foley, who has been for years an ardent advocate of the commercial application of wireless to railroad work figured that the saving thus represented in one operator's salary represented the interest at six per cent on a $1,500 investment, and that therefore his road could well afford to go to the additional expense of equipping two of the



Upper Picture Shows Telephone Transmitter and Telephone Operator in the Compartment of a Moving Train. Lower Picture Shows the Transmitter and Operator at the Fixed Station at Scranton.

Limited trains on the New York-Buffalo run with radio telephone apparatus in place of the wireless telegraph, and also to install similar apparatus first at Scranton; to be followed ultimately by other track-side telephone installations at other division headquarters.

The problem of telephoning to and from fast express trains was by Mr. Foley put up to Dr. Lee deForest, America's pioneer in the radio telephone field. This expert lost no time in designing and building a special type of wireless telephone which was first installed last spring at the wireless station at Scranton.

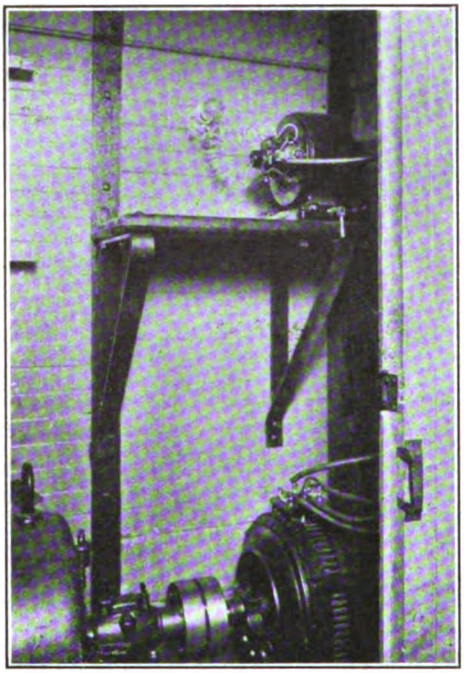
During these first trials no attempt was made to telephone from the train, but in the receiving instrument on the eastbound train out of Scranton, the voice of the speaker at the transmitter was clearly understood on the train as far east as Strausberg, over 52 miles, when traveling over 50 miles an hour.

Confirmed in their confidence of success by these preliminary tests, Mr. Foley and Dr. deForest decided upon a permanent train installation as well.

This apparatus has recently been completely installed on the Lackawanna Limited Train No. 3, which leaves Hoboken for Buffalo daily at 10.15 A. M. A description of this installation and of the very satisfactory results already obtained follows.

The "antenna" system of radiating on receiving wires consists of two No. 10 stranded phosphor bronze wires on each side of the roof of four cars comprising the first four in the train, supported on large petticoat porcelain insulators on iron stanchions of each corner of the car roof. These wires are 18 inches above the metal roof of the coaches. When the train is made up the antenna wires of all four coaches are connected in series by means of flexible connectors, so that the entire system is some 300 feet in length.

The power plant for the wireless telephone generator is located in a closet in the front end of the baggage compartment of the combination mail



STEAM TURBINE AND GENERATOR LOCATED IN BAGGAGE CAR.

and baggage coach. It consists of a five-horse-power Terry steam turbine direct coupled to a special high-frequency alternator designed and built by the deForest Radio Telegraph and Telephone Company, of New York. Steam is supplied directly from the locomotive at a normal pressure of 125 pounds. This pressure is controlled by a reducing valve in the steam heating pipe beneath the car. The turbine exhausts directly downward on to the track bed.

The operating speed of the turbine-generator unit is 2,500 r.p.m., and this is maintained within close limits by means of a special governor under the specially several conditions obtaining here where the full generator load is thrown on and off as the radio telephone apparatus is frequently and suddenly switched from transmitting to receiving.

The special conductor type alternator is excited from a quarter kilowatt 110 volt exciter supported on a shelf directly above the alternator, and belted to a pulley on its shaft extension.

Alternating current having a frequency of 6,000 cycles is led through two separated leads in wooden conduits to a pair of Gibbs train connectors at the rear end of the baggage coach, and thence to the radio telephone booth in the rear end of the smoking car next adjoining. A pair of leads from the alternator field and exciter are also led into this compartment to enable the telephone operator to easily regulate the voltage and power input.

The illustration shows the form of radio telephone transmitting and receiving apparatus installed on this train. It follows in general design the lines of the familiar wall telephone set, though of course somewhat larger.

The radio transmitter is in the upper part of the instrument, the receiving tuning instruments in the lower part, set at an incline, so as to give the operator ease in tuning his receiver to any transmitted wave length.

The deForest Audion Detector, indispensable in wireless telephone work, is used. This instrument is shown on the little cabinet fastened to the door of the transmitter case. The usual pair of sensitive high-resistance double telephone receivers are shown connected to the Audion detector.

The entire telephone apparatus is thus of exceptionally neat and compact design, well suited to complete ease of manipulation, and could scarcely be improved upon from the standpoint of simplicity of operation.

This new deForest radio telephone transmitter, a patent on which has just been issued, marks a great advance over all old forms of the direct current arc transmitters or generators of high-frequency currents.

The arc apparatus, from its very nature, could not be made reliable and free from frequent adjustment and skilled regulation. The new type, however, is really "fool-proof." As bearing out this statement may be cited the fact that once the quench spark gap here employed is properly adjusted it is locked up so as to make it impossible for the operator to touch it or alter its adjustment.

The transmitter circuit here employed is peculiar to this type of apparatus and does not comprise the tuned coupled circuits usually employed in wireless transmitters.

This novel circuit arrangement greatly simplifies the tuning of the transmitter. Moreover, the antenna system is not tuned to the primary, nor even "substantially in tune" with it, but the wave length of the transmitted radiation may be varied through generous limits by merely shifting the contact switch shown on the front of the transmitter case. Once this is set to the desired wave length no further attention on the part of the speaker is required except to push down the little "listening switch" for talking, and to lift same for listening.

This little switch also controls the filament-lighting current of the Audion bulb, which thus becomes a visual signal to guide the speaker. He can not telephone when this light is lit, nor can he receive when the lamp is not lighted.

It is not necessary to speak into the transmitter louder than in ordinary long-distance wire telephoning. In fact, the articulation suffers and the range is diminished if one attempts to shout into the transmitter mouthpiece.

The preliminary trial trips of the Lackawanna Limited carrying the deForest telephone were made during the week of February 7th last. Contrary to expectations it was then found that, after preliminary adjustments, regulation of the steam turbine, etc., had been perfected, the voice from the rapidly-moving train was received at the Binghamton wireless station of the railroad over almost as great distances as from the fixed station to the train. This is, of course, partly due to the fact that the train noises interfered with the faintest sounds received. These train noises would, in fact, reduce the range of reception on the train to ten miles were it not for the extraordinary efficiency of the deForest Audion amplifier, or telephone relay. On the train a two-step Audion amplifier is employed, very similar to that now used in transcontinental telephone service by the American Telegraph and Telephone Company (who recently purchased the wire telephone rights to all the deForest Audion patents). By this amplifier the voice-currents as received are amplified as much as 60 times their original intensity, without the slightest distortion, and are thus raised so far above the train noises that the voice of the Scranton operator, for example, can be distinctly heard when the train is 30 to 40 miles distant.

Thus it appears that the little Audion, first as detector and then as amplifier, is as essential a feature in his epoch-marking introduction of radio telephony to railroading as is the new transmitter system itself.

The following brief report on the first official trial trip was sent to President Truesdale of the road by Mr. Foley:

"Five wireless telephone messages were received at Binghamton passenger station, from train number six on February 7th, passing the following stations:

	Distance.
Loundsberry	26 miles.
Apalachin	14 "
Vestal	8 "
Hallstead	14 "
Alford	27 "

Railroads throughout the country generally are already evidencing keen interest in this pioneer work of the Lackawanna road, especially for freight train service they see where a great economy can be effected even by the simplest one-way radio telephone service from signal towers to the caboose of through freight trains. Each unnecessary stop that a long heavy train is now compelled to make represents a loss to the road of from $20 to $30. It frequently happens that scheduled wayside stops of a "manifest" freight train could be avoided were it possible to telephone the latest new orders to that train crew, while under full speed.

By a series of small radio telephone stations located at certain signal towers along the right of way it will now be possible to convey these orders verbally to the train conductors or to the engineers direct.

Dr. deForest has recently brought out a very small radio telephone transmitter which can be profitably installed complete for less than $400, capable of telephoning to a caboose over a range of two or three miles. He estimated that a railroad line of 500 miles can be fully equipped for such freight signaling service for an initial outlay of $30,000. The monthly interest on this sum at five per cent is $125. Operating expenses of these small radio telephone transmitters plus that of the caboose receiving stations, would not exceed $1,000 per annum all told, including power consumption, deterioration, etc.

Railroad men state that on such a road a daily loss of $200, due to "unnecessary" stops of the manifest freights, is a conservative estimate. The probable saving which can thus be effected by such radio telephone service is therefore receiving, just at present, their most careful consideration.

The Annual Charges for Ties

NOTE.—The following paragraphs are taken from a paper by Harrington Emerson and T. T. Bower, presented at the annual meeting of the American Wood Preservers' Association.

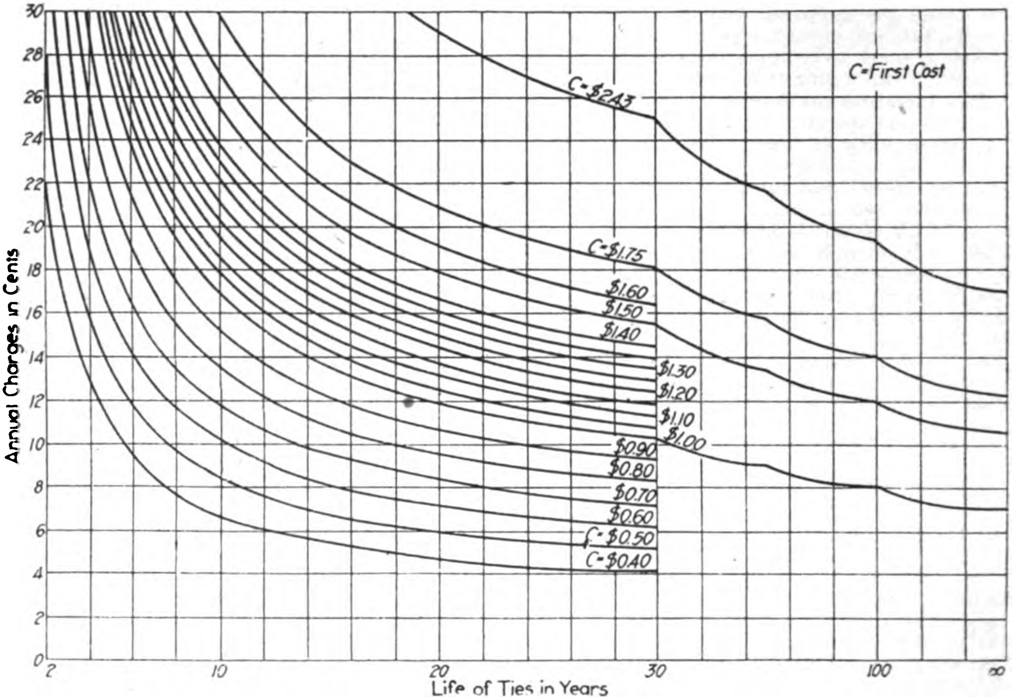
SOME items of investment, like an ocean steamer, drag along through a number of years and then are suddenly scrapped. It is proper to set up a depreciation reserve from the first year of so much per year, to charge this assessment as an operating expense and to earn compound interest on the reserve so that at the end of the life of the steamer there will be a sum sufficient to make good the shrinkage caused by the scrapping. Insurance takes care of total or partial destruction. Other items, like coal, are used up day by day, and are, therefore, charged out when issued, before use, as an operating expense. There is no interest charge except straight interest on the amount invested in coal not issued. Other items, such as railroad ties, are so numerous, that, like coal, they constitute a constant flow for replenishment. In this case all the ties can be considered as one big tie renewed in part every minute, every hour, every day, the renewal cost thus becoming a monthly charge.

If the ties are worth $25,000,000, one per cent for taxes per annum and six per cent for interest per annum can be charged monthly against the investment, and in addition there is the monthly charge for the cost of the new ties put in. This method is both safe and rational on an old road on which the inflow of replacement ties has become continuous, but not for a new road with 25,000,000 new ties, expected to last ten years. In this case a sinking fund would have to be set up, sufficient to replace the ties at the end of ten years. But ties do not wear out in any such regular fashion. Some go in a year, others last twenty years, and this irregularity vitiates any compound interest plan.

To determine the annual cost of maintaining any tie all we need to know is (a) first cost in track, (b) annual interest and tax rate, and (c) life of tie. The first cost of the tie consists of three main charges, some of which may be still further subdivided. The three main charges are: (1) First or wood cost of tie, including foreign freight, preservatives and mechanical protection; (2) labor and other costs of putting ties in the track, and (3) overhead supervising charge. The sum of these is the cost of the tie in track.

On the first cost of the tie there is a tax charge and an interest charge. In our calculations we assume a tax rate of one per cent on value and an interest rate of six per cent, making a total of seven per cent. Any other rate can be used. The annual maintenance charge for all ties is the sum of the annual interest and tax on the first cost of all ties in track and the replacement cost in track of all ties removed.

Over a series of years the replacement accurately determines the average life of all ties. If



RELATION BETWEEN FIRST COST, ANNUAL CHARGES AND LIFE OF TIE

one-tenth of all the ties are replaced each year the average life is running at the rate of ten years. If in ten years as many ties have been replaced as the total in service, the average life is ten years, irrespective of variations in different years.

The annual maintenance cost can be expressed by the formula

$$A = C\text{-}Y + C\ (i + t)$$

where A = annual maintenance charge C. first cost of tie in track; Y, average years of life determined by number of removals; i, rate of interest on investment, and t, tax rate on investment. By means of the above formula the accompanying diagram has been constructed for solving instantly the fundamental question of the relation existing between first cost of tie, life of tie, and annual cost of maintenance.

Three distinct problems may be solved with this diagram: (1) To find the relation between first cost and duration of life with a fixed annual cost; (2) to find relation between annual cost and duration of life with a fixed first cost, and (3) to find the relation between first cost and annual cost with a fixed duration of life.

The first problem is by far the most valuable of the three. It solves definitely the economic question of the value of tie treatment. Suppose a tie without treatment costs $1 in the track and lasts ten years. How much may be spent for treatment to prolong its life to 18 years? The annual cost of a $1 tie lasting ten years is 17 cents. The intersection of the 17-cent horizontal line with the 18-year vertical line falls on the $1.35 curved line of first cost. Therefore, it will pay to spend 35 cents for chemical treatment or mechanical protection, or both, on the $1 tie to prolong its life from 10 years to 18 years.

The diagram also illustrates graphically, by the steepness of the curves, the great economy in prolonging the life of ties that ordinarily last but a few years.

Some of the More Important Railway Associations: Their History and Purposes

By Geo. Bradshaw, Safety Engineer.

We have good authority for the statement that "no man liveth unto himself." This is particularly true of the railway man. The very nature of his work precludes isolation and calls for association, interchange of ideas and co-operation with those engaged in similar activities. There is no profession which demands of those who are not content to be "hewers of wood and drawers of water" all the days of their life a more extensive and profound knowledge and a broader and more generous conception of principles, rights and duties than that of railroading. What Blackstone said of the law a century and a half ago has become even more true of transportation. "It employs in its theory the noblest faculties of the soul and exerts in its practice the cardinal virtues of the heart."

To the early and constantly increasing recognition by railway men of the principle of joint interest, concerted action and co-operation is due in a large measure the remarkable progress of American railways. The oldest railway organization in this country is

THE AMERICAN ASSOCIATION OF PASSENGER TRAFFIC OFFICERS

which was organized (under slightly different name) in 1855.

To this body is due in a large measure the credit for our excellent (it would not be extravagant to say the best) system of passenger transportation. Travel in this country, from one corner of the land to the other, has been made so easy of arrangement, so relieved of unnecessary detail and unjust restriction, provided with such high degree of safety, comfort and luxury and conducted upon schedules so definite and certain that even the most radical and ranting foes of railways regard it with national pride.

THE MASTER CAR BUILDERS' ASSOCIATION.

The Master Car Builders' Association dates from 1867. With the free interchange of equipment on all the railways of the continent made possible by final adoption of the standard gauge in 1886, the usefulness of this Association became greatly increased and extended. It is to-day the one association of railway men of which it can be more truly said than of any other that we could not carry on railway operation without it. While its action is declared to be recommendatory upon its members, it is in fact the most binding, not because of arbitrary exercise of power, but from the very necessity of the situation. Every road belonging to this Association—and practically all do belong—is compelled to comply with the methods determined upon by a majority of the members for the same reason that a man must refrain from rocking his own boat, however great may be his dislike of the action of his companions. This is not true of any other railway organization, even of the American Railway Association.

For grasp of detail, for taking care of multitudes of conditions, for accurate accounting, extensive and efficient supervision of minute affairs, for fair dealing among so many distinct and widely separated units, the Master Car Builders' Association has no equal. By its rules, a company must receive another company's cars if they comply with certain specified conditions and the receiving company becomes responsible to the owner of the car for damage due to unfair usage, derailment or accident. It often happens that a company must pay for loss or damage to cars resulting from acts of persons over whom it has no control or due to the acts of the elements, as lightning, flood or storm; but the rule is based upon necessity of the situation. This may or may not be the law of the land, but it is the law of railways.

To the activities of the Master Car Builders' Association, more than to any other body of men, we owe uniformity in the height of drawbars, the development and installation of the automatic coupler and, in fact, car safety appliances in general. In 1869, just a quarter of a century (lacking one year) before Congress passed the now famous safety appliance act, this Association began the agitation which resulted in the automatic coupler and that act only imposed a legal obligation on all roads to do what many of them had already done voluntarily owing to the influence of the M. C. B. A.

Through the efforts of this body, the parts of a car have become almost as well labeled, classified and standardized as the bones of the human body. A freight car is a member of the greatest protective brotherhood on earth. To it is extended a degree of confidence which no man enjoys. It can travel to any point on the continent with assurance of credit solely upon presentation of its name. Though thousands of miles from home, it is entitled, as of right, to the same care and attention as members of the car family in their own yards. It enjoys a degree of Utopian benefits and privileges which would make tramps of half the species of its owners. Free physical examination by experts with relief from duty when necessary and usually on full pay. Taken to the hospital when its condition demands and with the satisfaction, for which many a man would give a king's ransom, of knowing in advance that the operation will be a success and a cure. All services being upon a prearranged schedule, there is relief even from the anxiety attendant upon the presentation of an expert's bill.

THE ASSOCIATION OF TRANSPORTATION AND CAR ACCOUNTING OFFICERS.

This body (under a different name) was organized in 1876. The interchange of equipment between railways has made necessary a most elaborate and perfected system of accounting which is little understood and appreciated by the public and even by railway men not concerned with that branch of the service. When we reflect that the railways of this continent own over two and a half million freight cars; that each car moves an average of 24.5 miles per day and that every movement of every car must be recorded and accounted for, we can understand something of the service rendered by car accounting officers. With such high degree of accuracy is this service rendered that it is literally true that every piece of freight, from a coffee pot to a threshing machine, and every car, loaded or empty, transcribe a record showing the date, hour and place of movement as accurately as the dial on the cage shows the position of the elevator. In days long past, men were employed as "car chasers" to find lost cars. To-day we use a postage stamp and seldom need that.

To this Association is due the credit for our per diem rules and other conditions of car interchange. Formerly the use of foreign cars was charged for on a mileage basis. It is now fixed at the uniform rate of 45 cents per day. The former method had the advantage of compensating for wear by usage of equipment, but was objectionable in allowing nothing for interest and depreciation while the car was idle and to the further objection that the owning company had no practical way of checking the mileage made on a foreign line and the foreign line was not subjected to an incentive to return the car promptly which the per diem method affords. It is thought by some that a combination of these two methods would be more just, if it can be applied.

THE AMERICAN RAILWAY MASTER MECHANICS' ASSOCIATION.

has been in existence since 1868. Membership is not limited strictly to master mechanics, but is open to officers of the motive power department generally upon certain conditions. The members of this Association, individually and collectively, like the equipment which they produce, have always been first and foremost in the march of railway progress. The officers of every other department have been pulled or pushed to greater achievement by the motive power man. No one ever constructed a car too heavy, built a bridge too strong or made a track too secure for a locomotive. But cars of thirty, forty, and even fifty thousand capacity, are being scrapped; wooden bridges have been replaced by steel and cement and seventy-pound rails have given way to those of one hundred pounds because, and solely because ,the motive power man has forced us to do it. We don't know when or where he's going to stop, but we think we can ride as fast as he can pull.

The American Railway Engineering Association

was organized in 1899. It seems rather remarkable that the men first concerned in the existence of a railway—the builders—should be among the very last to form an association for the advancement of their mutual interests. Such is the fact, whatever may be the reason. Until recent years, there was comparatively speaking little co-operation and concerted action between men engaged in this branch of the service. The most striking evidence of this fact is found in the variation in track gauge. Even after Brunel, the engineer of the Great Western in England, had departed from the standard gauge and the "battle of the gauges" had been fought and decided in that country by an act of Parliament in 1846, the engineers of this side continued to build to six or eight different gauges for more than thirty years. This is a remarkable instance where concerted action, such as is now followed, would, if it had existed at an early date, have advanced the industrial development of the country, especially of the South, two or three decades.

But the work of this Association, owing to the earnest, systematic and thorough manner in which it is conducted, is largely making up for a late start. The action of the Association is entirely recommendatory upon its members and in some respects general policies have not been followed as closely as might seem feasible and desirable. The reports of this Association are among the most valuable documents issued owing to the learning and extended research which characterize their production.

The American Railway Association.

The American Railway Association is the supreme council in railway affairs. Its membership represents 98 per cent of the mileage of the United States, Canada and Mexico. Its history dates from 1872 when officers of different roads began to meet for the purpose of arranging local time tables to conform to through schedules. These "time table meetings," as they were first termed, were held separately by the representatives of the Northern and the Southern roads, due doubtless to the fact that the difference in track gauge prevailing at the time precluded effective through traffic arrangements between the roads of the two sections.

A most annoying condition existing at that date was the variation in time. Each road ran its trains upon some arbitrary basis as, for example, the local time at the road's headquarters, with the result that there were more than fifty different standards of time. The necessity for adopting a common standard was clearly apparent and at the meetings referred to the solution of this problem was undertaken by the representatives of the two sections working independently. The meetings were continued at regular intervals and came to be known as "The Northern Time Convention" and "The Southern Railway Time Convention." By their joint efforts, standard time was adopted in 1883 and the solution of that problem suggested and encouraged further co-operative effort with the result that the uniform code of train signals was put into effect in 1884.

In 1886, with the adoption of the standard gauge, the two bodies were amalgamated under the name of "The General Time Convention" and in 1891 the name of that body was changed to "The American Railway Association."

Membership in the Association is open to all steam roads operating 100 miles or more. Roads of smaller extent may become associate members which confers upon them all privileges except that of voting. Each active member is entitled to one vote for each 1,000 miles, or fraction thereof, operated. The regular meetings are held semi-annually in May and November.

The object of The American Railway Association is "the discussion and recommendation of methods for the management and operation of American railways."

The Association wisely declines to consider matters relating to revenue traffic, thus leaving its members free from even the suggestion of restraint in the development of and competition for business. The constitution declares that "its action shall be recommendatory and not be binding upon any member."

Railroad Advertising

Note.—The following paragraphs are taken from an address delivered by Mr. Edward Hungerford, advertising manager, Wells Fargo and Company Express, before the Canadian Railway Club, on March 9, 1915.

THE smart executive has many thoughts and many suggestions on advertising. Most quick-witted and alert men have—and most of their thoughts and suggestions are very good indeed. He may have, and probably does have, more than a little pride in the advertising of his road. But, in many cases, he probably has little more than a head-nodding acquaintance with the advertising manager of his line. That poor soul is "down" in the organization. He works "up" to the president through two or three intermediate executives who may or may not have any intimate knowledge or liking for advertising and who almost certainly will have widely divergent ideas as to its practical application. Frequently he has the exquisite torture of seeing his best publicity ideas, so twisted and so changed before they approve the final stamp of approval from the "big chief" and go out into the world to attempt their missions, that he would not know himself these children of his own brain.

Now here is a condition, not absolutely prevalent upon the North American continent but unquestionably dominating far too many of our railroads and preventing them from gaining the fullest advantages from advertising and publicity of every sort. Before we consider the remedy let us give attention to one or two possible causes for this condition. A railroad executive, big-hearted and shrewd-headed—offers what he thinks is a good reason:

"The reason we are willing to defer to the general counsel and do not often assume to criticise him is because we realize that he is a trained man. The points he makes are the result of his specialized education and his experience. Our advertising agent is a very different sort. His book education ceased before he was done in the high school. He has come up with us in the railroad—all the way from office boy. Can you expect us to defer to his judgment or to accept it as something infallible?"

This begins to look as if we had a very definite cause formulating itself. Without losing sight of this point let us turn around and see it from the other angle—from that of the man who is handling the advertising for that very road. He is equally frank.

"Perhaps the old man is right," he admits. "I am willing to admit that one of the main troubles in advertising the railroad is in its advertising man himself. As a rule he has not been selected because of experience or ability—a good many times he has been secretary to some "big wig" in the traffic department and the advertising job is given him because it was neecssary to proffer some slight promotion to a man who has been faithful in the company's service. And eventually he will quit the advertising job. He will be too big for it—the truth is that it will be too big for him—and so he will go and another will come—leaving the whole job to be done over once again.

"The truth of the matter is that a big railroad is just like a big manufacturing concern; its operating end is the manufacturing department while its traffic end corresponds with the sales department of a factory. One of the weaknesses of the railroad situation to-day is that some of its leading figures claim that the business is different from any other. There may be minor differences but in my opinion there is a strong similarity between railroading and manufacturing.

"Yet because of this very feeling that railroading is fundamentally different from other businesses, its advertising is too frequently permitted to also become different. It is not looked upon by these men as a force that may be brought to create traffic—and this despite some of the things that I have told you already to-night—but as merely a cut and dried, or hit and miss method of making announcements as to train service, excursion rates and the like."

Our advertising man has not finished.

"One other thing," he continues, "I want to return to the qualities which may be used to create a railroad advertising manager. Remember that the average railroad man enters the service early in life. I went to work in the traffic department of this road when I was fourteen years old. I had not much of an education—one of the older men of the road told me that the reason perhaps why they did not put me at work in the operating department. The humor of his remark did not reach me at that time. A little later when they put me on a rate-sheet I began to get it.

"Yet is is from boys, such as myself, boys who gradually come to be rate clerks, if they are good and dutiful, that the heads of the traffic department of the average railroad are selected. Many of them never get out on the line, indeed away from home at all, until they are well advanced in the rate department, and I believe that a man who spends months checking rates for pennies is apt to become very narrow indeed, just as a bookkeeper is apt to become narrow. In my own opinion, our large manufacturing and distributing concerns might just as well make sales-managers out of their bookkeepers as for a railroad to try and make a traffic manager out of a man who is a rate clerk and nothing more.

"Merchandising, like advertising, is a specialized business and requires specialized training and education. And is it to be wondered that a man who has had no special training toward the diplomatic handling of the public has little or no appreciation of the real place of advertising in the progressive business organization? And those having in charge the traffic department of a railroad should be—first of all—good sales managers. Rate clerks can be hired just as easily as an advertising manager can hire a copy writer."

Here then is the case as put by one actual advertising man. And whether we subscribe to it in full or not, I think that we all can agree that he has struck at both the cause and the result in far too many railroad advertising departments to-day. And I do not think, myself, that there is any great problem involved in finding the solution of the problem—particularly not when we keep steadily in mind all the while what advertising has done for the railroad, how it has made trains like the International Limited, the Imperial and the Twentieth Century household words, how it has upbuilded whole townships, and counties, and states, and provinces, and so in turn upbuilded the welfare of the railroad.

Remember again that every railroad has, almost as a fundamental, its legal department elaborately and exquisitely organized. The general counsel of a railroad is its watch-dog. He is constantly on the defensive. He sleeps with that traditional one eye open. He is the railroad's defender.

Just as the legal department of the railroad is its defensive wing, so should the advertising department be its offensive. The advertising manager should sit alongside the general manager and the traffic manager, the counsel and the comptroller. He should be freed from the detail and left to plan the publicity of the railroad, in its every phase. It should not be alone his work to write time tables or scurry immigrants out to new localities, to see reporters or to attempt to steal fast freights from his nearest competitor. His work should combine these things and then reach to a far higher plane, the meeting, and gauging and shaping of public sentiment of which more in a moment.

The advertising manager of the railroad should be trained—he should train himself if you please—as carefully as that general counsel has trained himself. He should not himself expect to be bid-den to sit at the family table without being made ready for the feast. There are plenty of educational forces that stand ready to help him make himself a better man not only for the railroad for which he works but for the satisfaction of his own peace of mind as well. He should be not only a student of advertising and the things that pertain to advertising, but he should also be a student of changing conditions, he should be what we of "the States" sometimes call a publicist.

For no matter how intelligently and successfully our railroads may have advertised for immigrants and for passenger traffic of every sort and condition I do not believe that they yet have used paper and ink to the greatest advantage to fight the most of their battles for public sentiment; in repelling the attacks of unjust legislators and commissions. They have rarely used these implements with greatest intelligence. As a rule, if they advertised for public sentiment through newspaper advertisements, it has been an eleventh hour measure adopted in a great crisis.

The railroads of the State of New York—splendid advertisers for passenger traffic each one of them—united in such an eleventh-hour appeal throughout the newspapers of the state against the so-called full-crew bill, which was then before the Governor of the state—a bill which would add more than $2,000,000 to their costs of operation. The "ad" was generous in proportions, but the Governor laughed at it and signed the bill. He was a shrewd enough moulder of public opinion to know that the railroads had thrown away their money.

On the other hand, what a different result might have been written if the railroads steadily and persistently, whether under legislative fire or in times of seeming calm, had told their story quietly and interestingly through the newspapers of the state. It would not have cost them anything like $2,000,000 a year to have brought an intelligent public sentiment to their aid. What it would have cost would have been the expenditure of thought and careful planning by one man in authority—a man trained for just such an emergency as this, plus a most moderate cash outlay for newspaper space, would have produced a campaign that quickly would have ended the "full crew" menace in New York. In fact this very sort of a campaign has just been waged by the railroads in the State of Missouri against the "full crew bill," which had also come into being in that state. Despite the fact that the bill had passed and had become operative as a law a shrewd and deliberate advertising campaign, conducted at a most reasonable cost to the railroad, succeeded in repealing it by popular vote at an election called for that purpose. And it is gratifying to see that the railroads of the United States working toward the repeal of the full crew bills in some other states, as well as a general increase in their passenger rates are not relying upon the charity or the good nature of the newspapers for free space for the presentment of their case but are paying for regular advertising for the shrewd, deliberate forceful statement of their very good arguments. Perhaps they have studied the splendid results obtained by a policy advertising of the telephone companies, a splendid example of the use of advertising of the highest type by a public utility. Perhaps they have read the printed record of the individual campaign waged by the trolley company of Toledo, or those of various traction and lighting utilities which have handled such problems and handled them intelligently.

But they could not have been handled intelligently, or successfully by some man buried at an inferior desk of a department. They must have been handled by men who were executives, with executive work and executive opportunity—men who were paid and well paid too, to plan in the large ways that the railroad must approach not only its individual patrons but the entire public upon the printed page. Success of this sort rarely comes in large measure except to men and institutions who go out to meet her in a large way.

Financial

The Outlook.

RECENT business reports from various sections of the country have given rise to an increased feeling of optimism in financial circles. While it is admitted that improvement in business is extremely slow, still each week shows some betterment in one trade or another. For example, the improvement in the steel business has recently been pronounced and the Steel Corporation is now said to be operating at about 40 per cent of its capacity. This is a most favorable showing as compared with the situation the early part of the year. Furthermore, while the railroads have not as yet gone heavily into the market for new equipment, there have been several rather heavy orders placed recently, particularly in the locomotive field, so that some of the more important plants are anticipating a distinct revival in their business. There is also noted an improvement in freight and passenger traffic, and railway earnings are beginning to show a better comparison with a year ago.

Bond offerings are being well taken care of and while the stock market is quiet, there is reported to be investment buying of securities in good volume, and also signs of an accumulation of standard shares. There is, of course, considerable alarm over recent foreign developments both in Europe and Mexico, but the market, owing to severe past shocks, is not now nearly as sensitive to such developments.

While no predictions can be ventured at the present time with regard to the duration of the European conflict, there are certain indications that the war will soon witness drastic changes in the personnel of the now neutral nations of Europe, which may bring about a peace much sooner than is generally anticipated.

As to the situation in Mexico, even should the United States be forced eventually to establish order in that nation through force of arms, the influence of such a conflict would hardly be felt to any great extent by the business or financial interests of the country, particularly in view of the seasoning they have received through the more serious complications brought about by the European war.

The money market remains easy and the conclusion to be drawn from figures recently issued by the Comptroller of the Currency, is that the lower reserve requirements of the new banking law are largely responsible for the present ease in the money markets.

In the face of a $500,000,000 loss in net deposits, a loss of more than $51,000,000 in reserves and a loan expansion of $31,000,000, the national banks of the United States were able, as a direct result of the workings of the new Federal reserve system, to report surplus reserves on December 31st, $423,000,000 larger than on October 31st, before the new law became effective. The significance of the lower reserve requirements of the new law may be seen in the fact that, while excess reserves on December 31st were reported of almost $550,000,000, there would have been under the old law a surplus of only $150,000,000. In short, the new law was directly responsible for $400,000,000 of this huge surplus.

Even more striking in demonstrating the part the change in banking laws played in creating the present easy monetary conditions is the fact that under the old reserve requirements the three central reserve cities, New York, Chicago and St. Louis, would, instead of reporting surplus reserves of $83,000,000, have had a deficit of $35,800,000; and the 51 other reserve cities in the country would on December 31st have had a deficit of $44,500,000, instead of a surplus of 143,000,000, as they did report. The country banks would have had a surplus of $230,800,000, instead of a surplus of $323,500,000, as actually reported.

Although the lowering of reserve requirements has obviously been such an important factor in the present monetary ease, it is not to be inferred that the large excess thereby created is artificial. Thus far, owing to business depression, only moderate demands have been made upon it, but it is none the less ready for use as a basis for credit expansion when the needs of trade so require.

Frederick A. Delano, who, before becoming vice-governor of the Federal Reserve Board, was president of the Wabash Railroad, is enthusiastic over the work thus far accomplished by the Board. In an address delivered recently before the Baltimore Association of Credit Men, he summed up his conclusions regarding the value of the work performed under its supervision as follows:

"The reason the Federal Bank system is great is that it has been evolved by the patient study and adaptation of our own best banking experience, the experience of Europe, the clearing-house certificate plan, all ingeniously grafted upon an existing national banking and currency system with which the country was familiar. The result is a system far better suited to American needs and American methods and prejudices than a central bank or a branch bank system.

"If the plan works out in practice as well as it should; if the Federal Reserve Board does its full duty; if petty or partisan politics are laid aside, we shall have reached one ideal of scientific management—'local self-government and centralized supervision'—we shall have accomplished the object of all good organization—local incentive and enthusiasm, with only enough centralized supervision to compare results; to measure men, methods and costs, and to insure the necessary co-operation in all matters where joint co-operation is necessary, either for the good of the country or of the banks themselves."

Change in Directorate of Missouri Pacific-Iron Mountain System.

At the annual meeting of the Missouri Pacific-Iron Mountain System held in St. Louis, on March 9th, two important changes were made in the directorate.

They were the election of B. F. Bush, president of the system, to the chairmanship of the Board of Directors of the Missouri Pacific and the St. Louis, Iron Mountain & Southern Railways and the retirement of E. T. Jeffery, of New York, a long-time associate of George J. Gould, from the directorate of the two roads.

A proxy committee represented by Otto K. Kohn, of Kuhn, Loeb and Company and Alexander J. Hemphill of the Guarantee Trust Company of New York, controlled the election and this was accepted as proof that George J. Gould and his associates no longer control the so-called Gould trans-continental system, comprising the Missouri Pacific, the Denver & Rio Grande and the Western Pacific Railroads. Kingdon Gould and Frank J. Gould were not re-elected vice-presidents of the roads. Mr. Bush already has succeeded Mr. Jeffery as president of the Rio Grande and Western Pacific and this election was said in authoritative quarters to indicate Mr. Jeffery's retirement also from the chairmanships of the directorates of those two roads.

The Missouri Pacific holds a large block of stock in the Rio Grande, which in turn has a controlling interest in the Western Pacific. The new management has before it the duty of caring for a $25,000,000 note issue of the Missouri Pacific which matures June 1, 1915.

The new directors of the Missouri Pacific are Edward A. Faust, William H. Lee and E. J. Pearson of St. Louis; Nicholas F. Brady, Newcomb Carlton, A. J. Hemphill, Cornelius Vanderbilt and W. H. Williams of New York.

The old directors re-elected are Benjamin F. Bush, Edgar L. Marston, Edwin G. Merrill, Finley J. Shepard and R. Lancaster Williams.

The old directors who are not on the new Board are George J. Gould, Edwin Gould, Kingdon Gould, James Speyer, E. O. Adams, J. G. Metcalfe, E. T. Jeffery and S. F. Pryor.

The new directors of the St. Louis, Iron Mountain & Southern are Nicholas F. Brady, Newcomb Carlton, A. J. Hemphill, Cornelius Vanderbilt, W. H. Williams and Festus J. Wade, the latter of St. Louis.

The directors of the Iron Mountain re-elected are: Benjamin F. Bush, Edgar L. Marston, Edwin G. Merrill, Finley J. Shepard, Alfred Wiggin and also E. C. Simmons of St. Louis and C. A. Pratt, of Little Rock, Ark.

The old directors of the Iron Mountain who were eliminated in the organization of the new Board are: George J. Gould, James Speyer, E. T. Jeffery, Jacob G. Metcalfe, Jay Gould and S. F. Pryor.

Rail Revenues and Expenses for January.

THE Interstate Commerce Commission has issued a partial summary of railway revenues and expenses for the month of January, 1915. The advance figures in this summary have been compiled from the reports of operating revenues and expenses of large roads and embrace the returns for 175 of such systems. Operating revenues for the month totaled $213,942,073, while operating expenses amounted to $163,516,423, leaving a net revenue from railway operations of $50,425,650. Results from similar operations in January, 1915, resulted as follows: Operating revenues $230,999,634, operating expenses $179,828,134 and net revenue $51,171,500. In other words, in spite of the fact that the carriers reduced their operating expenses by some $16,000,000, their net returns fell below those of the preceding year, due to the heavy shrinkage in gross returns.

For the seven months ending with January, 1915, railway operating revenues for these roads totaled $1,731,763,492, while operating expenses amounted to $1,211,286,492, leaving a net revenue from this source of $520,477,000. The net results for the corresponding months of the preceding year showed a total of $545,352,064. It might be added so far as the January figures are concerned, the shinkage in net occurred on the southern and western roads, the eastern roads showing an increase of somewhat over $2,000,000 for the month, and about an even break for the seven months.

Operation

Railroad Fuel Economy.

AT the February meeting of the New England Railroad Club, Mr. M. C. M. Hatch, superintendent of fuel service of the Delaware, Lackawanna and Western Railroad, delivered an interesting address on: "Railroad Fuel Economy." He pointed out that the fuel supply of American railroads for the year ending June 30, 1913, cost $241,598,314, or 11 4-10 per cent of the total operating expense. According to Mr. Hatch, the thermal efficiency of the modern locomotive is in the vicinity of 5.5 per cent which means that if the 100 per cent condition could be utilized, the cost of fuel for doing the present work, calling for over two hundred millions, would be reduced to about $11,000,000 the tremendous difference being made up of wastes both avoidable and unavoidable which do not, actively, move a ton of freight or a passenger. The factors which exercise control over fuel consumption of locomotives were stated to be as follows:

A—Design,
B—Maintenance,
C—Engine House attention,
D—Fuel,
E—Operating Department,
F—Engineers,
G—Firemen.

After analyzing each of these factors in an effort to indicate the best methods to be employed in producing the greatest economies in fuel consumption, Mr. Hatch made the following classification of losses and the reasons for their occurrence.

Considering the losses in detail:

Responsible: Combustible in Ash
Loss (A) Design. (B) Maintenance.
(C) Engine House.
(D) Fuel. (E) Operating Dept.
(G) Firemen.

Reasons:
(A) Because of faulty grate-work design.
(B) Improper grate maintenance.
(C) Improper fire cleaning.
(D) Coal which clinkers instead of burning down to ash.
(E) Engines called for service and not used.
(G) Fires brought in not burned down sufficiently.

Loss Carbon Monoxide

This loss is generally up to the fireman, a fire too heavy increasing the C O percentage. Usually the total loss in this regard is small, many analyses of smokebox gases showing but a trace of this gas. Proper firing will entirely take care of this. Insufficient air admitted under the fire will, however, militate against the best performance.

Loss Sparks and Cinders
Responsible: (A) Design. (D) Fuel.
(E) Operating Department
(F) Engineers. (G) Firemen.

Reasons:
(A) Restricted grate area or anything in the design which will run the fuel rate too high. Brick arch not used.
(D) Fuel too friable or too high in slack.
(E) Schedules arranged or trains loaded so that engines must be worked unreasonably.
(F) Working engine harder than necessary. Slipping.
(G) Too heavy fire. Carelessness in placing coal in fire-box. Firing fine soft coal, dry.

Loss Heat Rejected at Stack
Responsible: (A) Design. (C) Engine House.

Reasons:
(A) Boilers so designed that heating surfaces are insufficient or inefficient to absorb all heat possible. Insufficient air admitted to fire.
(C) Principally through failure to keep heating surface clean, scale and soot being excellent insulators.

Loss Radiation and Unaccounted for
Responsible: (A) Design. (B) Maintenance.
(G) Firemen.

Reasons:
(A) and (B) The radiation losses are probably small and can be reduced to a minimum by proper use and maintenance of covering materials.

(G) Probably the greatest loss of those "unaccounted for" is that of unconsumed hydro-carbon gases, such as Methane, or Marsh Gas and Ethylene or Olefiant Gas passing out of the stack. This loss is occasioned by improper firing, generally too heavy, liberating greater volumes of gas than can be properly mixed and burned in the fire-box. A brick arch will help remedy this, acting as a very efficient "mixer." Smoke is an indication of this condition (although the loss may be present without smoke) as the carbon thus made visible is not the fixed carbon of the fuel but is evolved from the hydro-carbons volatilized in the fire-box, but not properly burned.

The above items take care, in a general way, of boiler losses and from this we come to the engines. As has been said, the greatest loss here is by heat rejected at the exhaust and this, with a simple engine, cannot be much reduced. Compounding will, however, reduce this loss materially and, while compounds seem just now to be anathema in this country, the writer believes that they will ultimately return to favor, as in conjunction with high degree superheat, an over-all power plant coefficiency can be realized which will exceed that attainable by any other combination.

"Stand-by" and general losses can be reduced by proper loading of coal on cars at the mines and on tenders; by elimination of water and steam leaks; by keeping the pops closed; by getting trains over the road as expeditiously as possible, etc.

The Car Situation.

AFTER suspending for several months its reports on idle and surplus cars, the American Railway Association, through its Committee on Relations between Railroads, has again undertaken the compilation and publication of these figures. The latest report of this Committee, giving a summary of freight car surpluses and shortages for February 1, 1915, as compared with conditions on specified dates in 1914, makes the following showing:

TOTAL SURPLUS—	
February 1, 1915	227,473
November 1, 1914	172,325
February 1, 1914	211,960

Reports as of February 1, 1915, have been received from 159 roads, operating 1,854,150 cars, while figures for November 1, 1914, were furnished by 192 roads operating 2,203,414 cars. It is therefore probable that had reports been received from the same number of roads in February the surplus would have been increased by approximately 50,000, or a total of 277,000.

The greater part of the surplus increase over figures of November 1, 1914, is in Group 2 (Eastern) and consists chiefly of coal cars.

In the surplus grand total this increase is offset to some extent by a large reduction in box cars in Group 11 (Canada) due to the failure of two large roads in that section to report.

TOTAL SHORTAGE—	
February 1, 1915	832
November 1, 1914	2,229
February 1, 1914	2,282

The shortage is negligible.

The figures showing the surplus and shortage by classes of cars follow:

Classes	Surplus	Shortage
Box	40,553	493
Flat	16,243	56
Coal and Gondola	133,200	201
Other	37,497	82
TOTAL	227,473	832

The Results of Forest Fires from Locomotive Sparks.

ACCORDING to a report recently issued by the United States Department of Agriculture, out of the 503 fires reported by the forest service as having occurred in 1914 on the national forest purchase areas in the White Mountains of New England and the Southern Appalachians, 319, or 60 per cent were caused by sparks from locomotives. More than half of these fires, or 272, occurred in Virginia alone, and of these 227 were from locomotive sparks.

Three hundred and seventy-nine of the fires were confined to areas of less than ten acres each, and 296 were extinguished before one-quarter of an acre had been burned. The total loss amounted to $2,192 and the cost of fire-fighting to $1,300, an infinitesimal sum compared with the value of the timber and reproduction protected. As the areas swept by fire were mostly cut-over, the greater part of the damage was suffered by young growth.

Baltimore and Ohio Discourages "Swinging-on" Trains.

"SWINGING ON" trains after they have been set in motion is discouraged by the Baltimore and Ohio Railroad in a circular which has been issued to trainmen, urging them to get aboard promptly and before starting at terminals, in order to minimize the danger of personal injury as well as to facilitate operation and overcome delays. It is held by the company's officials that boarding trains promptly makes it possible to attain the maximum speed provided by the schedule with more quickness, while it also obviates the necessity of the engineer dividing his attention in order not to leave other members of the crew. This latest effort in the interest of quick transportation applies chiefly to freight service.

Efficiency Tests on the Pennsylvania Railroad.

OUT of 3,861,962 efficiency tests and observations made on the Pennsylvania Railroad last year, more than 99.9 per cent showed perfect obedience to the train safety rules. To be exact, the safety regulations were followed to the letter 1,494 times in every 1,495 cases observed. The tests covered the work of both officers and employes of the Operating Department.

Exactly 24,798 tests were made of the observance of stop signals, and in only 34 cases did the employes fail to live up to the strict letter of the rules—in other words the employes were 99,86 per cent perfect in then observance of stop signals.

An absolutely perfect record was made by enginemen in observing flagmen's signals; 18,203 tests showed not one failure. Altogether, tests were made last year of compliance with 37 different classes of safety rules. In 31 of the 37 classes, records of 99.9 per cent efficiency, or better, were made. In three classes, representing a total of 31,379 individual tests, perfect performance was recorded.

In 113,747 instances observed, there were only 314 in which the rules governing the handling of explosives and inflammables were not followed exactly. There were only four failures in 129,773 tests for obedience of the rule against trains leaving or arriving ahead of time. In all save nine out of 16,251 cases, the regulations requiring trainmen to be stationed at all unprotected grade crossings, during the shifting of cars, were obeyed. There were only 17 infractions, in 53,430 instances, of the rules governing watchmen at protected crossings.

To test obedience to the regulations for the protection of men working on or about tracks, no less than 309,389 observations were made. In only 39 instances was there failure to follow the rules perfectly. Out of 17,642 observations to see whether first aid equipment was kept in proper order, six cases requiring criticism were found. In addition to the observations for obedience to the train safety rules, 51,414 tests were made last year in the use of signals. The results showed 99.4 per cent of perfect efficiency.

Safety Developments on the Baltimore and Ohio.

IN a review of the "Safety First" campaign conducted by the Baltimore and Ohio System during 1914, a report issued by the General Safety Committee shows that 91 per cent of all items recommended to improve safety conditions was disposed of by the company. Recommendations totaling 9,256 items were made by 698 employes who are members of safety committees on 23 divisions throughout the territory served by the railroad. These men kept a constant vigilance in the interest of the traveling public, their fellow employes and shipments entrusted to their care; and only 806 of the items reported remain under consideration.

The Ohio River Committee, whose headquarters are at Parkersburg, W. Va., disposed of 91 out of every 100 of the 892 recommendations made. The Ohio Committee, with offices at Chillicothe, Ohio, led in percentage of cases disposed of with an average of 97 per cent on a total of 448 items recommended. The Chicago Terminal Division was second with 96 per cent of the items corrected.

Showing the co-operation between the employes and management of the Baltimore and Ohio, the first American railroad to establish a "Safety First" Department upon ideas originated by the Chicago and Northwestern Railroad, the report shows that on no division of the system did the percentage of recommendations adopted during the year fall below eighty. On several of the divisions fewer than ten cases remain to be disposed of, which means that the company recognizes the qualifications of its men to pass upon conditions surrounding their personal safety as well as the safety of passengers.

Mechanical

Pennsylvania Railroad Adopts New Style Air Brake.

THE Pennsylvania Railroad has adopted for its passenger equipment, a new style of air brake which will stop a train of twelve steel cars—weighing more than 2,000,000 pounds—in a thousand feet, its own length, or practically two-thirds of the distance it takes the air brake now generally in use to stop it.

The new brake differs from the old mainly in that the control of the compressed air is electric, with the result that the brakes are applied at the same instant on all cars; the full braking power of the train is exerted in two seconds after the engineer turns his lever. With the brakes in use to-day it is impossible to make a full emergency application of the brakes immediately after an ordinary application has been made. With the new mechanism the emergency and the regular brake features are entirely separated, so that the emergency brake can be applied with full force at any time. By attaining almost instantaneously the maximum braking force, the distance in which an emergency stop can be made is cut down considerably as compared to stops made with ordinary pneumatic brakes.

To find out just how the new brake would work, as compared with the old and under similar conditons, unusual preparations were made. A train of 12 Pennsylvania Railroad standard steel passenger cars and one of its large high-speed locomotives weighs something over 1000 tons. When running at a speed of 60 miles an hour it is moving with a force equal to that in a charge of dynamite powerful enough to blow the whole train 120 feet in the air. It exerts as much extra force as a ton weight would have when falling 21 miles. It is just such a train that was used for these tests.

The train was equipped with both the new and the old brake systems, so that a complete change could be made from one to the other quickly. The tests were made on a portion of the south-bound track of the Atlantic City Division of the West Jersey and Seashore Railroad near Absecon Station, probably as fast a piece of roadbed as there is on the lines of the Pennsylvania Railroad, if not in the world.

While the track over which the actual tests were made was level, the approach for some

DURING EXPERIMENTS WITH THE NEW AIR BRAKE, THIS TRAIN OF TWELVE STEEL CARS, WEIGHING MORE THAN 2,000,000 POUNDS, WAS STOPPED IN A THOUSAND FEET, ITS OWN LENGTH, OR TWO-THIRDS OF THE DISTANCE IT TAKES THE AIR BRAKE NOW GENERALLY IN USE TO STOP IT.

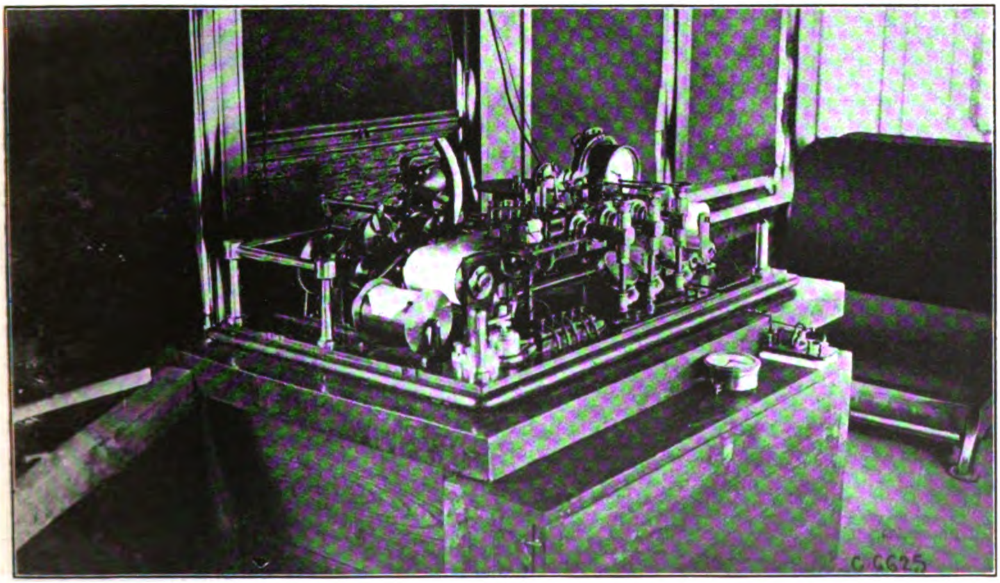
twenty-five miles was slightly down-grade. The conditions were propitious for a train attaining very high speed. The point chosen for applying the brakes was less than ten miles from Atlantic City.

The track was harnessed in various ways with electrical measuring contrivances for a distance of more than a mile. Wires ran from these electrical devices to a cabin near the point where the brakes were first applied to the train on each test. This cabin contained a clock and chronograph machine which recorded the speed of the train before and during the stops.

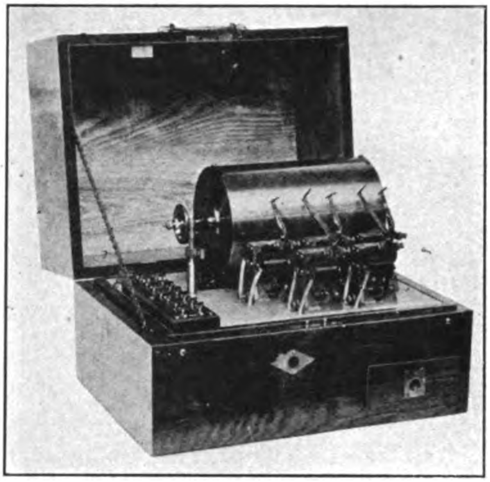
Telephones connected this cabin with two others, one 1200 feet and the other 3600 feet from the point at which the brakes were applied automatically—the "zero circuit breaker," as the experts termed it.

Wet and dry bulb thermometers—hygrometers they called them—recorded the atmospheric temperature and the relative humidity.

A delicate piece of mechanism on each car



PHOTOGRAPH OF DEVICE EMPLOYED TO AUTOMATICALLY AND SIMULTANEOUSLY RECORD THE BRAKE CYLINDER PRESSURE, THE TIME NECESSARY TO BRING A TRAIN TO A STOP, THE DISTANCE REQUIRED, AND THE SPEED AT EACH STAGE OF THE SLOWING-UP OF THE TRAIN.



Each Car Employed in These Air Brake Tests was Equipped with a Wheel Sliding Indicator which Recorded How Much the Wheels of Each Car Slid on the Rails.

furnished an autographic record of the revolutions of the axles in coming to a stop, and by this record it could be observed if there was any wheel sliding and if so, the distance of sliding exactly determined.

A chronograph on the sixth car in the train made another record of the distance of the stop, the time it took, the rate at which the train slowed up and the air pressure secured. An exact record was also made of the time during application at which sparks coming from the brake shoe were noticeable.

Telephones were located in the first, third, sixth, ninth and twelfth cars, in order that observers in each car might communicate with one another and call attention to peculiar indications.

Especially designed devices were used to measuse the pressure delivered to the brake shoes during some of the tests, the object being to determine the efficiency of the brake rigging.

Other instruments recorded any movement or slack action between the cars. These were located between the first and second, sixth and seventh, and the eleventh and twelfth cars.

As these tests were made on a track in daily use, cars were exercised to cause no delay to passenger trains. In order to run the maximum number of experiments each day, a program was prepared on the day previous in accordance with the schedule of regular trains.

When making a test the engineer always endeavored to have the train running at a speed slightly above the desired just before entering the measured track. When the train was within a given distance of this stretch of track a man located in the first car gave a signal to all of the observers on the train, so that they might have all instruments ready to perform their respective functions.

The throttle of the engine was closed just before the train reached the place where the brakes were applied automatically by a tripping device. At this moment the brake valve handle—the device with which the engineer controls his brakes in the engine was moved to the emergency position for all emergency stops, and to the closed or "lap" position for all ordinary applications of the brake.

When it was desired to stop the engine and the cars separately—these were called break-away tests—the above method was followed, except that steam was applied to the locomotive just as soon as the coupling was broken between the locomotive and the cars; this was done to get the locomotive away from the rest of the train and permit the cars to stop without any interference on the part of the locomotive.

Certain results arrived at are of more than ordinary interest. The shortest emergency stop of a single car, no locomotive attached, running at 60 miles per hour, was made in 725 feet. The retarding force exerted by the brakes in this case was 332 pounds per ton, which is equal to that which would be encountered on a grade so steep that one end of a passenger car would be 13.3 feet higher than the other end. This stop in 725 feet by a car running at 60 miles per hour established a new record for stopping a railroad car, and the record was made by the modern heavy steel passenger car. The shortest stop of a single car from a speed of 80 miles per hour was made in 1422 feet.

The shortest stop of a locomotive and its train of 12 cars from a speed of 60 miles per hour was made in 1021 feet.

The shortest stop of a locomotive and train of 12 cars from a speed of 80 miles per hour was made in 2197 feet.

Of very great value were the observations made during the air brake tests of the performance of brake shoes and brake rigging. The result has been that a more efficient form of rigging has been developed and a new basis for designing brake shoes and rigging has been formed. Shoes and rigging of the various designs

Each Car was Also Supplied with a Brake Pressure Indicator which Made an Autograph Record of the Pressure of Air in the Brake Cylinders.

are now being made the subject of exhaustive laboratory tests.

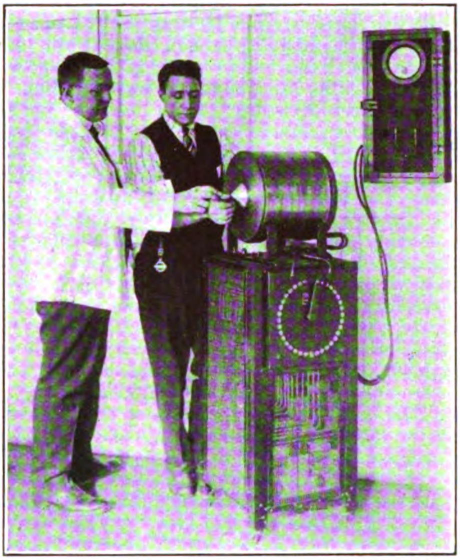
It seems a natural assumption that a shock would result from the application of emergency brakes to a train traveling at 60 miles an hour. But this is not true.

The tests show that the higher the speed of the train the less noticeable is the application of the brakes. The controlling factor proved to be the serial application of brakes such as prevails with the modern air brake equipment; yet with the electro-pneumatic brake, insuring instantaneous application of all brakes on the train, there was no shock at any speed, except a very slight one in the first few cars on account of the low braking power of the locomotive.

The Employment of the Electro-Magnet in Relief Department Work.

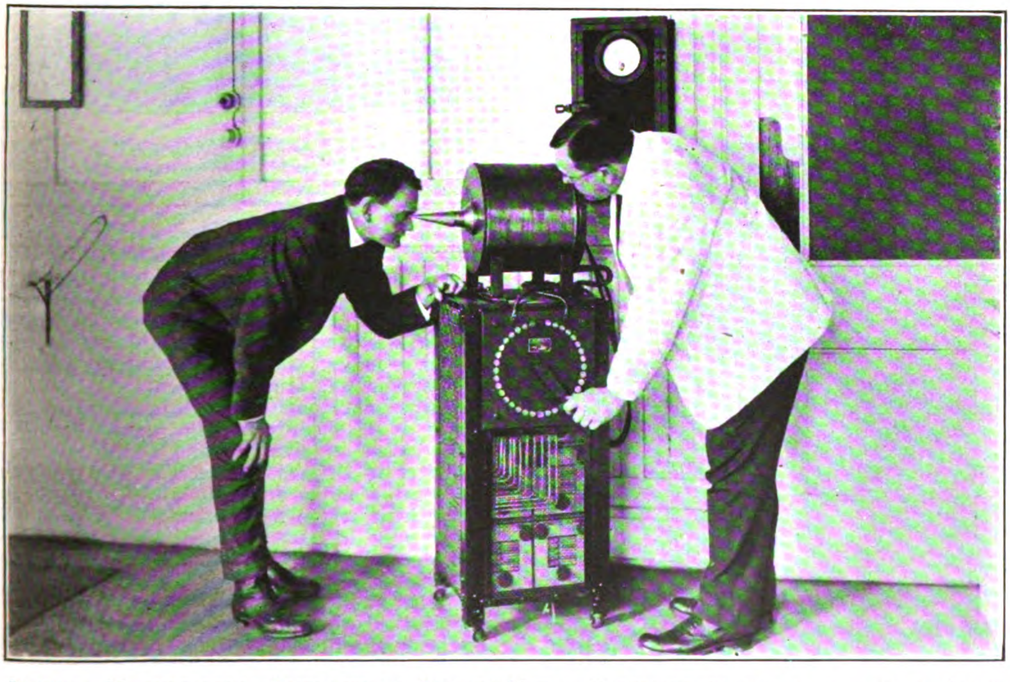
THE removal of pieces of shrapnel, steel-packeted bullets, etc., by the use of powerful electro-magnets in hospitals abroad has been acclaimed by many newspapers as the very latest application of science to surgery. It is interesting to note that the Westinghouse Electric & Mfg. Co. has installed in the Relief Department of its East Pittsburgh Works a magnet for removing metal embedded in the flesh, which is one of the most powerful in the world.

The magnet is mounted on a box containing the resister which is used to regulate the amount of current flowing through the coils. It requires 4000 watts for its operation, or enough power to supply 100 32-candle power Mazda lamps. It is designed for operation on 70 volts, and as the circuit from which it draws current is used for testing purposes in the Works and ranges from 70 to 130 volts, a resistor is necessary.



Employing Electric Magnet to Withdraw Steel Splinters from Finger.

It is not an infrequent occurrence for steel and iron workers to get bits of metal in their eyes or hands. Previous to the installation of a magnet the only means of removal was by probing, a method which is as uncertain as it is painful. Since this machine was put in operation it is a very simple proceeding to extract such



Electric Magnet being Employed to Remove Metal Particles which have become Lodged in the Eye.

particles. The portion of the body in which the foreign particle is embedded is placed near the pole tip of the magnet, switch closed, and magnet does the rest. The pole is removable, a number of different shapes being supplied for various classes of work.

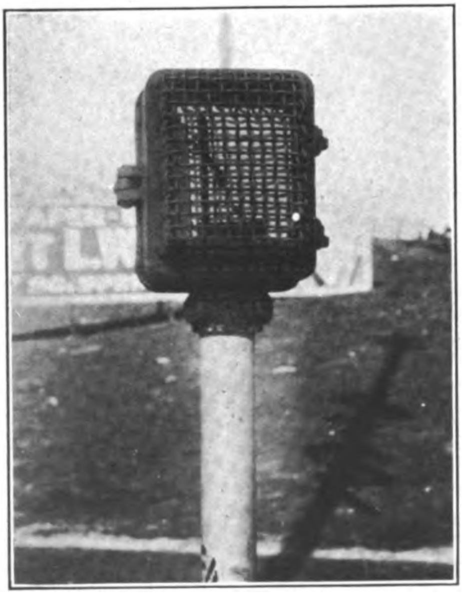
It is very common for flying bits of metal to lodge in the eye. Should they strike with force enough to become embedded, the removal, without the aid of a powerful magnet, is apt to be difficult as well as painful. The protecting coating of the eye must be cut, and there is danger that instead of removing the particle, it may be pushed further into the eye. When the foreign body is once within the eyeball it is properly a case for the specialist.

Steel workers frequently have their hands punctured with minute pieces of metal, which become embedded under the calloused skin. If these bits are allowed to remain, the wound is likely to become infected. The use of a powerful magnet insures the removal of all traces of iron from wounds in the hands or any other part of the body. Some remarkably small pieces have been extracted in this way, one recently recovered being not a twelfth of the thickness of a delicate needle.

A Switch Safety Signal.

THE accompanying illustration shows a switch safety signal and device which has been developed to promote greater safety in switching operations on railroads.

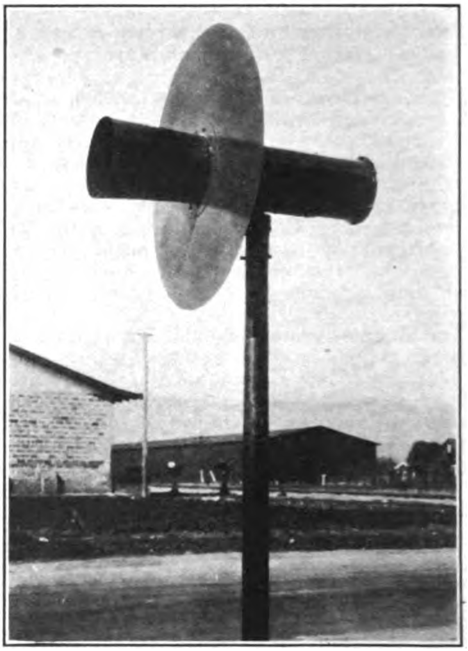
In installing this system the track or "block," which covers a mile of the main line on either side of the switch, is electrolized and the traffic upon this section is governed by the switch signal. For example, when a train approaches a switch on a branch line, the trainman, as he runs ahead to throw the switch and signal the train on the main track, glances at the switch signal and should the arm be raised, it indicates that a train is approaching on the main line. Consequently he waits until the train on the main line has passed, after which the danger arm of the signal falls down and the switchman knows at once that the main line is clear for a distance of at least one mile.



A Switch Safety Signal which Adds Greatly to the Safety of Switching Operations.

A Long Range Danger Signal.

A LONG distance danger signal, which has for its purpose the mutual protection of the motorist and the railroad company, has just been erected by one of the principal railroad companies in Southern California along its line at various points. This affair has been termed the "long distance" signal from the fact that both night and day its electrically illuminated danger signal may be seen for a half mile or more along the road leading to the railroad tracks. It is used in connection with the electric wig wag signal and is placed at much-traveled points, where the company's officials feel the wig wag is not sufficient.



Long Range Danger Signal which is Proving Effective in Warning Motorists and Others of Approaching Trains.

This signal consists of three different parts. There is a sheet-iron tube section which is eight inches in diameter and about two and a half feet in length, a wide, flat disc something like two feet in diameter and a 3-inch iron pipe which serves as a standard or post. The 8-inch tube has been painted black both inside and out. It has been closed at one end, and on the inside, about a foot and a half from the open end, a large ringed lens of red glass has been placed, this fitting nicely against the sides of the tube. Behind this tube is a powerful incandescent lamp, at the rear of which is a brilliant reflector. The wide disc is fastened to the outside of the tube by means of rivets, it being located several inches from the iron support. This is painted red on the face and black on the back.

From the light within the tube wires run down through the post and underground to the wig wag sign located close to the tracks. From this wig wag, wires run up the track, underground, for a distance of about a half mile in either direction. When a train approaches the crossing the wig wag at once begins its constant ringing, while at the same time the light in the long distance signal flashes out as a warning to approaching motorists. By placing the lens and light far back into the dark tube it is made possible for the motorist to see this electrically illuminated signal during the daytime almost as well as at night. During the day, in addition to this signal, the large red disc serves to emphasize the fact that a railroad crossing is at hand.

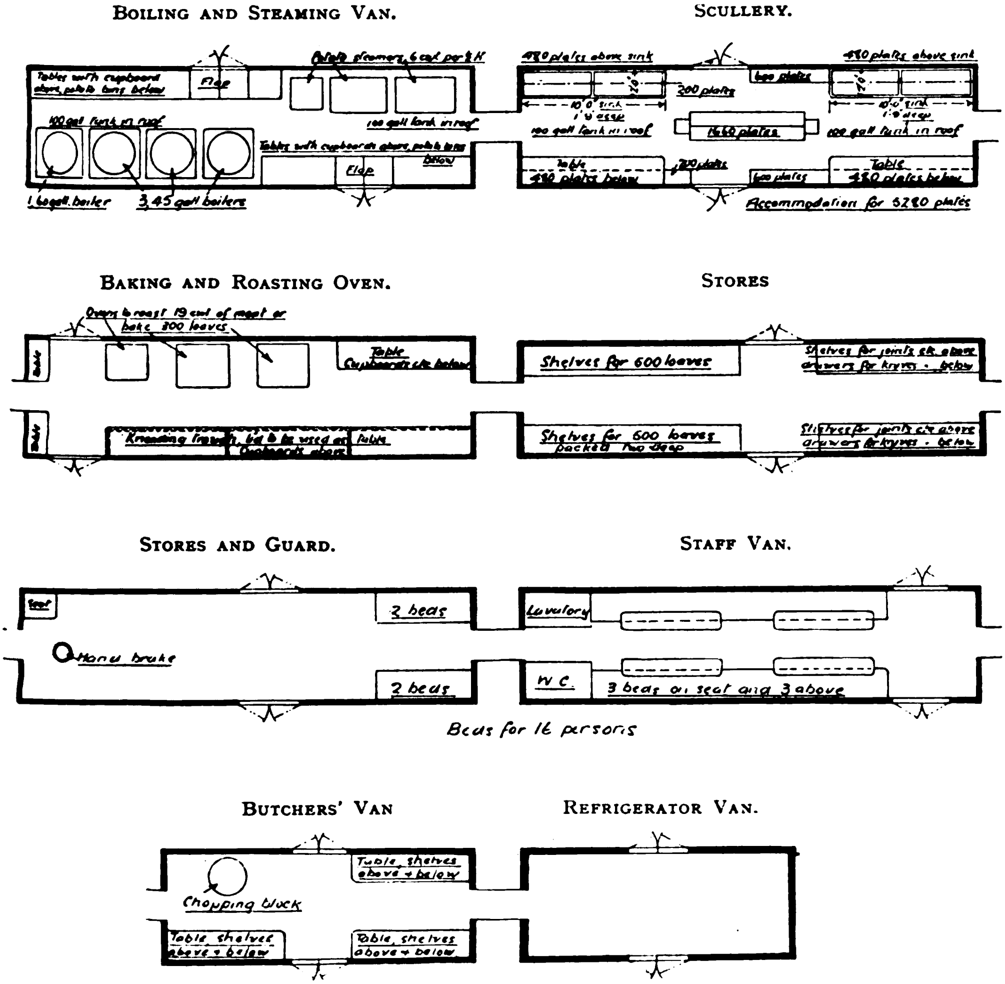
Commissary and Hospital Trains in the War Zone.

SEVERAL references have been made in recent issues, to the development of ambulance trains by the various European nations, at present engaged in war.

This, however, is only one of the problems which the railways have to face under such abnormal conditions. The rapid and efficient transportation of troops is perhaps something of even more importance, while by no means the least important factor of a war campaign, is the feeding of troops, the successful carrying out of which depends largely upon proper and adequate transportation facilities.

Mr. Amendt, general manager of the Great Eastern Railway of England, remembering Napoleon's dictum that an army marches upon its belly has turned his thoughts towards this subject and with the help of his locomotive, carriage and wagon department has designed a commissariat train containing a refrigerator van, a butchers' van, a staff van, two stores and guard vans, a baking and roasting oven van and scullery, boiling and steaming vans.

The staff van is a dormitory and lavatory affair containing six beds for the staff in case they have to be on duty for long periods of time and there are also four other beds in a combined stores and guard van. Another general stores wagon has shelves for 1,000 loaves, besides space for meat, knives, forks, etc. In the baking and roasting van there are three ovens capable of


BOILING AND STEAMING VAN.

SCULLERY.

BAKING AND ROASTING OVEN.

STORES

STORES AND GUARD.

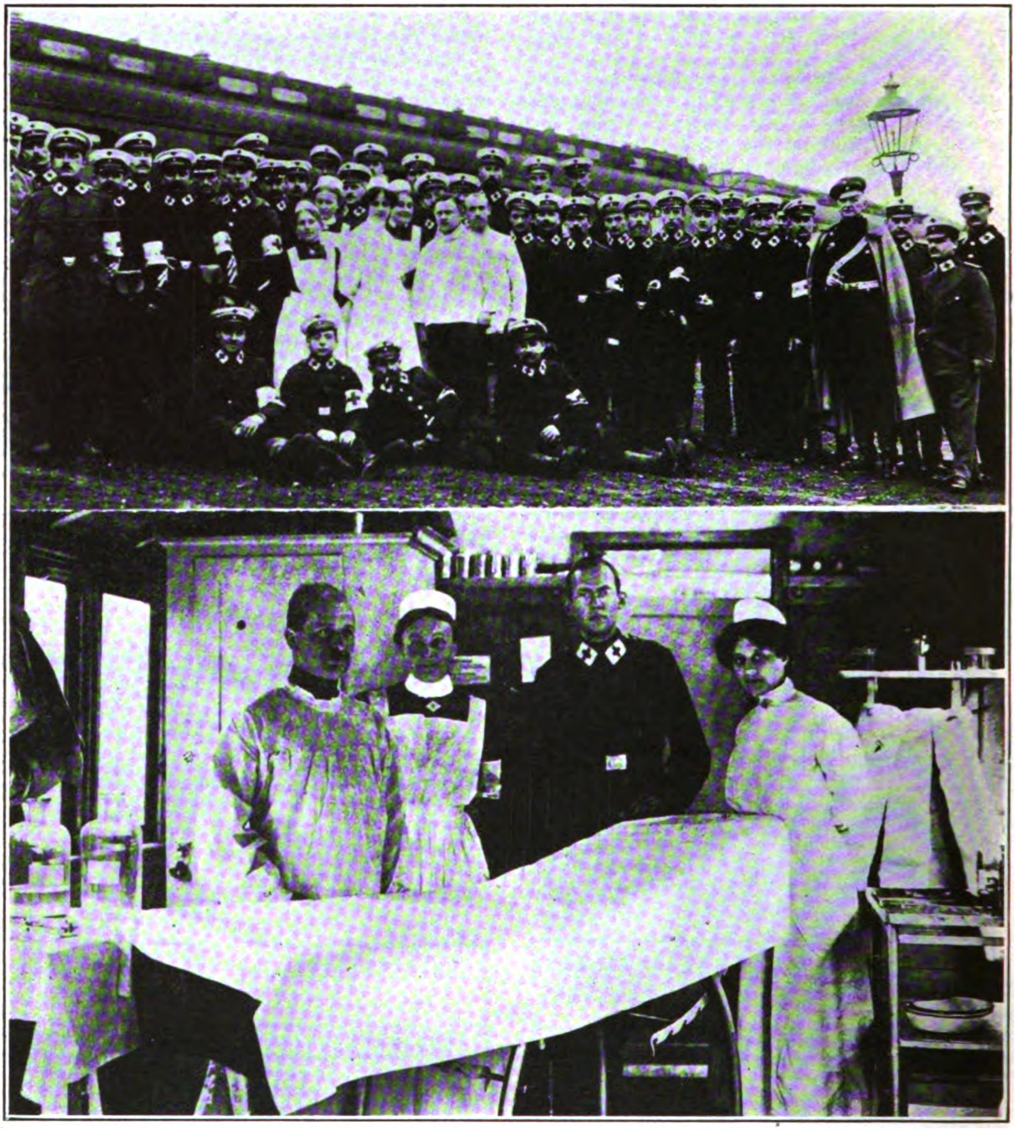
STAFF VAN.

BUTCHERS' VAN

REFRIGERATOR VAN.

Potato steamers, 6 cwt per ½ H
Tables with cupboard above, potato tins below
Flap
100 gall tank in roof
100 gall tank in roof
Tables with cupboards above, potato tins below
Flap
1, 60 gall. boiler
3, 45 gall boilers
480 plates above sink
480 plates above sink
600 plates
200 plates
10' 0" sink
1' 9" deep
10' 0" sink
1' 9" deep
100 gall tank in roof
1660 plates
100 gall tank in roof
Table
480 plates below
200 plates
600 plates
Table
480 plates below
Accommodation for 5280 plates
Ovens to roast 19 cwt of meat or bake 300 loaves
Table
Cupboards etc below
Kneading trough, lid to be used as table
Cupboards above
Shelves for 600 loaves
Shelves for joints etc above
drawers for knives · below
Shelves for 600 loaves
packed two deep
Shelves for joints etc above
drawers for knives · below
2 beds
Hand brake
2 beds
Lavatory
W.C.
3 beds on seat and 3 above
Beds for 16 persons
Table, shelves above + below
Chopping block
Table, shelves above + below
Table, shelves above + below

Car Diagrams of Special Commissary Train Developed by the Great Eastern Railway of England.



Upper Picture Shows Staff of German Hospital Train. Lower Picture, the Operating Room, Chief Surgeon and His Assistants in one of the Cars of this Train.

roasting 19 hundredweights (of 112 pounds each) of meat or baking 300 loaves, besides kneading troughs, tables, cupboards, etc.

In the scullery van for the washing up and so on there are two water tanks of 100 gallons capacity each, whilst racks and other accommodations are provided for a total of 5,280 plates. In the boiling and steaming van the equipment is very good, including one 16-gallon boiler and three 45-gallon boilers, together with potato steamers that will cook six hundredweights per half hour.

From this train, Mr. Amendt says he could supply, every four hours, bread, roast, or boiled meat and potatoes for 2,000 men, at a cost of not more than 25 cents per head, including a pint of tea, coffee or beer. The train could be sent at short notice to any place where food might be wanted, and is designed so as to be self-contained, i. e., the bread is made and baked on board, the meat is chopped and prepared and the meat and potatoes are cooked in boilers and steamers fed from the engine. The plentiful supply of water is obtainable from the tender of the engine; it is pumped into tanks at the top of the cars. The meals could be prepared with the train in running or standing and could be served with great rapidity.

The Germans are no less active than the English in providing the necessary commissary and hospital trains. In fact, it has been largely due to the remarkable employment of their available railway systems that the mobilization and care of troops has been accomplished with such a high degree of efficiency.

Two photographs are presented herewith, one showing a group of surgeons, assistants and nurses in the front of a hospital train and the other, one of the operating rooms in a car of this train. Both pictures indicate a grim efficiency which can be more comfortably admired from a distance, than close at home.

Terminal Improvements

New Passenger Car Shops at Chattanooga, Tenn.— Railroad insurance experts who have visited the Queen & Crescent route's new central passenger car shop in Cattanooga, Tenn., declare it is the only structure of the kind in the South. More than $65,000 has been expended on the main building, and the shops, when fully completed and equipped, will have cost more than $100,000.

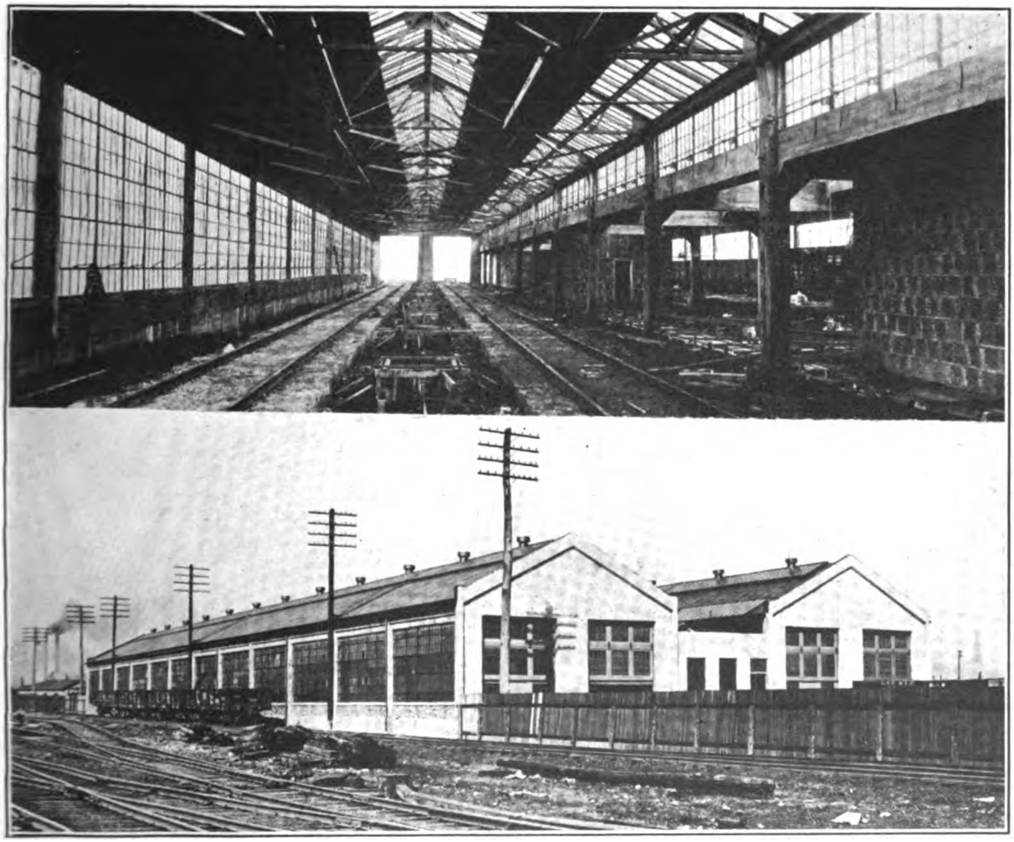
The old Queen & Crescent car shops are housed in a wooden structure just west of the new building. The old shops can handle only three passenger coaches at a time, while the new building will house twelve of the longest modern coaches.

Probably no building in the South is as completely fireproof as the new car shop building. The only inflammable material in the entire structure is the hardwood door to the foreman's office. The floor, walls and roof are principally of concrete, steel and glass. The main doors are of steel, and all the window sashes are steel. The panes are of wire reinforced plate glass.

The building is 300 by 106 feet in size, contains 31,800 square feet of working floor space and four parallel railroad tracks between each pair of which is a supply car track. Ten thousand panes of glass in the roof and sidewalls afford 18,000 square feet of lighting space. The interior walls will be plastered and finished in white so that the lighting arrangements will possess about the same efficiency as that of any open air shop.

The main part of the work is being done by the Queen & Crescent's own Chattanooga force under direction of J. F. Conerton, engineer of construction. The plumbing and artificial lighting are by contract.

Walls of the building were poured in forms



Interior and Exterior Views of the Queen and Crescent's New Passenger Car Shops at Chattanooga, Tenn.

which makes the main part of the building a single piece of concrete. Although comparatively isolated from public view by other structures in the large consolidated railroad yards, the building is artistically designed and would be an attractive addition to more accessible parts of the city.

The erection of the new passenger car shops means that most of the Queen & Crescent's repair work on passenger coaches will hereafter be done in Chattanooga. Its equipment will enable the railroads of the Q. & C. system to rebuild passenger coaches as well as remodel, repaint and refurnish them. Coaches seriously damaged by fire, wrecks, hard wear and rendered obsolete by time, will be restored to up-to-date, serviceable condition.

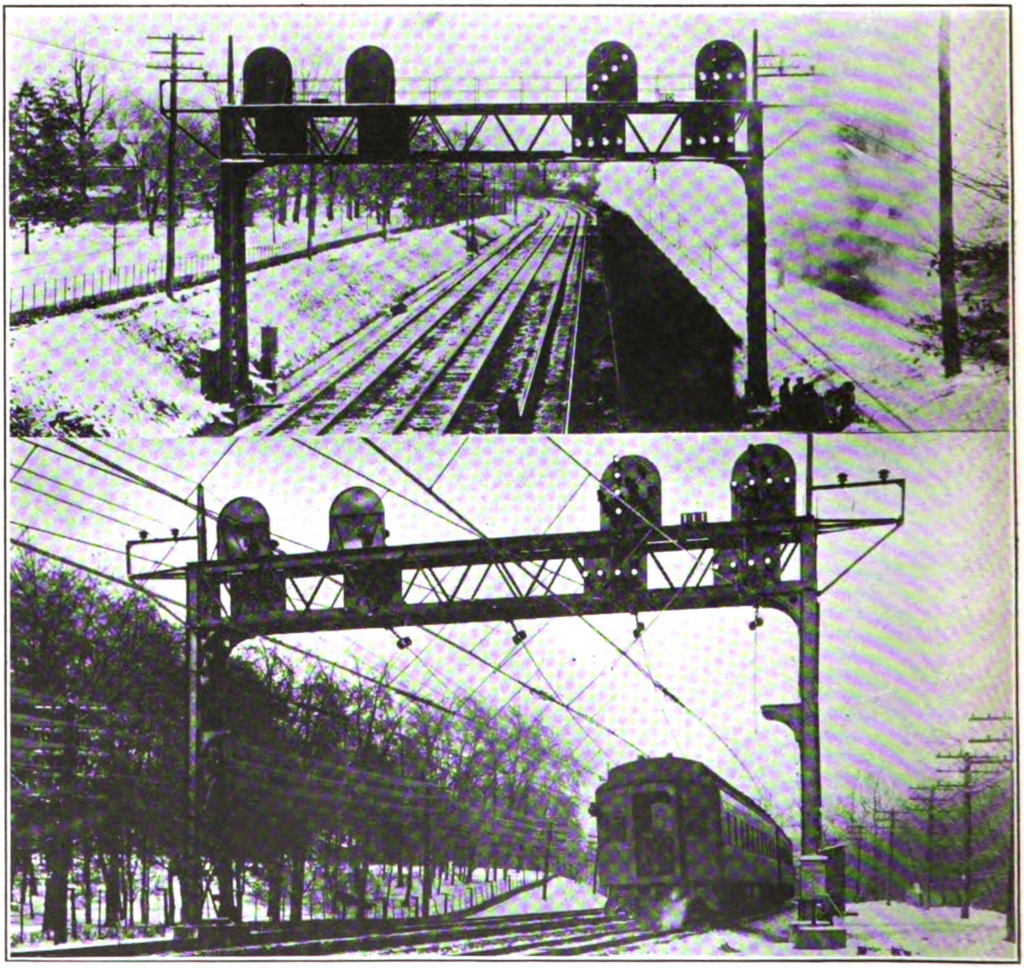
The capacity of the new shops being four times that of the old establishment will cause the railroad company to make a corresponding increase in the number of mechanics employed.

Electrical

New Signal System for Pennsylvania Railroad.

AN entirely novel signal system, differing in all respects from any ever before used, has been placed in operation by the Pennsylvania Railroad from Overbrook to Bryn Mawr. This is a portion of the section of the Main Line between Broad Street Station, Philadelphia, and Paoli, Pa., now being electrified. It is expected that the new signal system will be completed to Paoli early in March.

The new signals are especially designed to promote safety, efficiency and economy. All moving parts are eliminated from the signal apparatus. This not only reduces to a minimum the chance of getting out of order, but is also



Two Views of the New Automatic Block Signals Installed by the Pennsylvania Railroad on the Recently Electrified Part of its System Near Ardmore, Pa.

As indicated, the signals are displayed by means of rows of electric lights instead of by semaphore blades. The lights, which can be read equally as well in the daylight as at night, are so arranged that they can assume the various positions of the standard signal code.

expected to lessen the cost of installation and maintenance.

The same signals will be used both day and night. Enginemen will therefore be guided by the same code every hour of the twenty-four, with corresponding reduction of the chance of error. Necessity for distinguishing between lights of different colors is banished by using only white lights.

The feature of the new signals is the substitution, for day and night use alike, of brilliant white electric lights, showing sharply against a black background, in place of the moving arms of the semaphore, now used by day, and the colored lights used at night.

All positions of the semaphore arms—horizontal, diagonal and vertical—are duplicated in the new signals by the rows of electric lights. Each signal has a sufficient number of rows of lights to be the equivalent of two semaphore arms.

To make the lights clearly visible, even in the brightest sunlight, the voltage used in the day time will be nearly quadruple that used at night. The lamps can easily be seen, in the clearest sunshine, for more than 4,000 feet.

So powerful are the lamps, that when the full current is used at night it is possible to read large type by their light at a distance of 1,000 feet.

Each signal will protect a block of track 3,500 feet in length. A train passing a signal will automatically set it at "Stop." When the train reaches the next block, the first signal will change to "Caution." Another position of lights will show when two full blocks are clear and a fourth position when three or more are unoccupied.

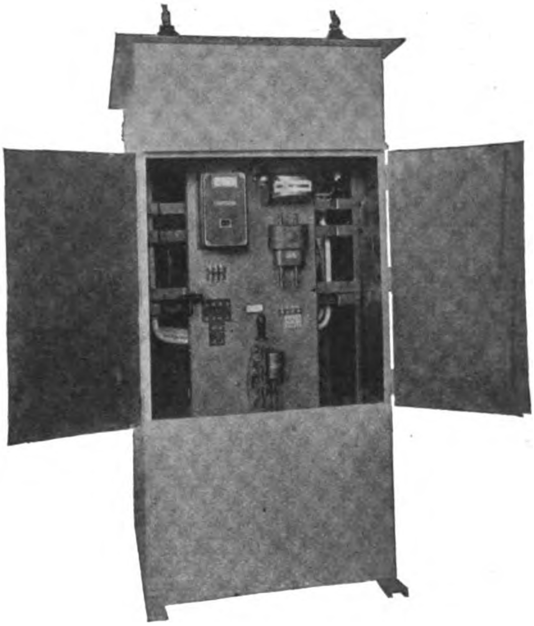
An engineman will always receive notice of a possible stop at least 7,000 feet in advance, and will receive two cautionary signals before approaching the "Stop" signal.

The completion of the first section of the new signal system marks an important step toward the actual operation of electric trains between Broad Street Station and Paoli. The work of electrification, as a whole, is now more than 80 per cent completed. Such progress has recently been made that it now seems probable that the electric service will be in operation by the time the summer train schedule becomes effective.

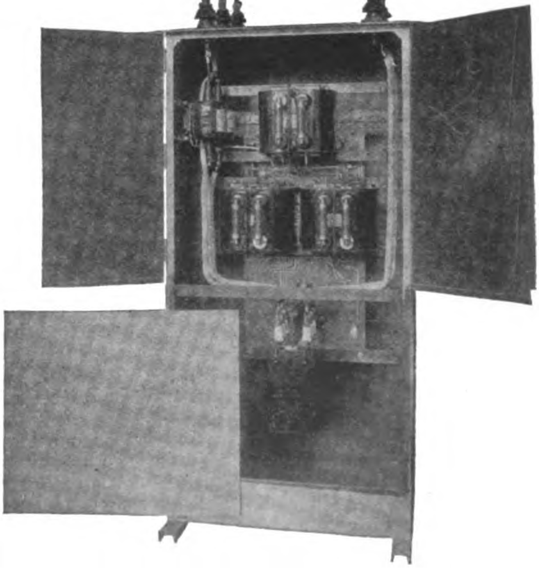
Ninety cars, each equipped with its own electric motor, will be employed. The cars have all been constructed and the motors are now being rapidly installed. All overhead work between Overbrook and Paoli is complete, save for final adjustment of apparatus. Two of the sub-stations for transforming current have been completed and very little work remains to be done on the other two. The large barn at Paoli, for housing the electric cars, is finished except for a few details.

Rural Substation in Railway Signal Work.

THE field of application of the rural substation is constantly broadening as its merits become better recognized. The main features are, of course, mobility, ease of installation and low initial cost as compared with a permanent indoor substation of like capacity to accomplish the same result. These points often exert a weighty influence on the solution of the problem of electricity supply, especially when the probable revenue is somewhat speculative, or the need for power either temporary or seasonal. In other cases the question of cost does not determine the installation itself, but merely its character. The accompanying illustrations show views of the first outdoor type steel switch houses of this class built for railway signal purposes, and are used in this connection by the Southern Railway at Inman, S. C. and Austell, Ga. The outdoor substations, of which the switch houses are a part, effect a considerable saving in outlay as compared with what



FRONT VIEW OF 4400-VOLT, THREE PHASE SWITCH HOUSE FOR RAILWAY SIGNAL SERVICE.



REAR VIEW OF SWITCH HOUSE.

would have been the cost of a substantial permanent substation to house the equipment. Each house is located at the foot of a pole tower supporting the transmission line, the outdoor power transformers, disconnecting switches, choke coils and lightning arresters.

The equipment of the switch houses is a little more elaborate than usually required for power or lighting purposes. The ordinary house, such as exhibited at the Railway Appliance Association Exhibition last month, has merely an oil switch, or an oil switch and watt-hour meter, with the necessary currents and potential transformers. In the house illustrated, there are also an extra potential transformer, a voltmeter, a circuit closing relay, two potential receptacles, and an incandescent lamp with bracket. The extra transformer, two potential receptacles and voltmeter in connection with the other two potential transformers required for the watthour meter, allow the voltage to be read on both sides of the oil switch before it is closed. The incandescent lamp gives illumination at night for reading the voltage or for lighting the inside of the house. The circuit closing relay is used in the usual manner to trip the oil switch in case of overload or short circuit.

Equipments of this kind are now being built by the General Electric Company. The houses are shipped wired complete, so that the only construction work necessary to put them in commission is to place oil in the oil vessels and connect the incoming and outgoing leads to the roof bushings.

Interstate Commerce Commission

Western Advance Rate Case.

INTEREST in the Commission's activities largely centers, at present, in the hearing being held at Chicago on the appeal of Western roads for moderate advances in certain of their commodity rates. A fuller account of this hearing will be found in another section of this issue.

Railroad Valuation Data.

THE Physical Valuation Bureau of the Commission has called on railroads whose property is to be valued by the Commission under the Act of Congress, to file a complete inventory of "the quantities, units and classes of kinds of property in its roadways or tracks; bridges, buildings and all other structures; signals and interlockers, telegraph and telephone lines, electrical apparatus and any and all fixed property except lands and equipment.

The railroads are also required to file a schedule of the trackage of so-called industrial railroads with which they operate.

Supplemental Order in Tap Line Cases.

THE Commission has issued a supplemental order in the tap line cases allowing lumber companies for switching services between a mill and trunk line railroads of $2 a car for one mile or less, and $3 per car for over one mile, and up to three miles from the junction. The order provides also that tap lines which gave up their charters as common carriers previous to July 29, 1914, may be paid similar allowances by trunk line carriers on shipments moving from May 1, 1912, until the date when the tap lines discontinued business, amounts previously allowed on the same shipments to be deducted.

Supplemental Order in Intermountain Rate Case.

A SUPPLEMENTAL order has been entered by the Commission in the intermountain rate case granting the transcontinental railroads relief from the long-and-short-haul clause so as to permit them to compete with the water lines operating through the Panama Canal. The relief was granted only on Class C commodities, comprising those heavy commodities which can be carried as easily by water as by rail, and then the relief was granted only on the rates to the points at which the Atlantic-Pacific steamships deliver their freight, which are, on the Pacific side, San Diego, Wilmington, East Wilmington, San Pedro, San Francisco and Oakland Cal; Portland, Ore., Tacoma and Seattle, Washington.

The Commission advanced the suggestion that rates to intermediate points near the Pacific Coast terminals may be made by adding to the rates to the terminals something less than the locals from terminals to destination, or by making basing rates to the terminals less than the local rates to such points, to be used in connection with the local rates from the terminals to destination in making through rates from Eastern points to points intermediate to the terminals.

Stockyard Rate Schedule Thrown Out.

THE Commission has thrown out a tariff filed by the Kansas City Stockyards Company to impose a trackage charge of 75 cents a car at unloading docks in its yards, and a switching charge of $2 per car, on eight of the fourteen railroads serving Kansas City.

The Commission held that the stockyards company is not a common carrier and said:

"The Commission is empowered to strike a tariff from its files if filed as part of a scheme by shippers to secure unlawful allowances from carriers under pretense of common carriage. The opinion declared, however, that the complaining railroads may compensate defendants, but that it may not exact compensation through a published tariff."

The Commission held further that the Kansas City company is a public utility and may lawfully receive pay for the services in question, "even though shippers of live stock participate in the stockyards company's dividends."

Roads Called Upon for Revenue Report.

THE Commission has issued a circular to the carriers in Official Classification territory in which the Commission permitted an increase of five per cent in freight rates requiring the carriers to prepare an estimate of the additions to their transportation revenues and incidental operating expenses accruing from the application of the increased rates.

The carriers are required to keep the account for each of the months of October, 1915, and April, 1916, and to prepare an estimate of such additions in revenues for the twelve months ending June 30, 1916.

Commission Rules Itself Authority in Car Storage Cases.

In a recent decision, the Commission holds in a divided opinion that it and not the courts has original jurisdiction in a case where there is an alleged failure on the part of a railroad to furnish cars to the extent requested by a shipper. The Illinois Central had denied the jurisdiction of the Commission in a case involving two coal companies, and argued that the question was one for court determination.

The opinion held that a carrier must do more than provide itself with sufficient equipment for the slack period of production and must assume the burden of explaining or excusing its failure to furnish cars.

Commissioner Clark wrote a dissenting opinion in which Chairman Harlan and Commissioner Clements concurred, holding that the question of requiring a carrier to provide itself with additional facilities or respond in damages for failure so to do, was essentially a judicial one and not within the power of the Commission.

Information on Release and Non-Release Rates Requested.

The Commission in order to expedite an inquiry into the rates, rules, regulations and practices governing the transportation of freight at released and non-released rates, required carriers to submit by May 1 a separate statement of each commodity listed in the classification on which the ratings apply. Other data is also asked for in statement form.

Western Passenger Rates Suspended.

The Commission has suspended from March 1, 1915, and later dates until June 29, 1915 the operation of tariffs which proposed to increase passenger fares in Western and Southwestern Passenger Association territories. The tariffs provide for a general increase in passenger fares throughout the above named territories.

While the increases vary in amounts, the proposed fares are quite generally made on a basis of 2½ cents per mile. It is also proposed to increase the price of 2,000-mile coupon individual tickets from $40 to $45.

Commission Requested to Modify Express Rate Order.

The Commission has received application for a rehearing and for the modification of their general order fixing express rates rules and practices. The application was filed by the Adams, American, Southern and Wells-Fargo Express companies. Commissioner Clark for the Commission authorized the filing of the petition and said it would be considered. The companies set forth that since the general order took effect on February 1, 1914, they "have united in a sincere and conscientious effort to make the said rates, rules and practices and the operations thereunder a success." The first ten months of operation under the Commission rates, however, the petition asserted had established a net deficit of $1,861,118.80, compared with a profit of $718,619.92 in the corresponding months of 1913. The companies said they had succeeded in cutting down operating expenses under the plan, but that a decrease of $11,875,998.87 in gross income had eliminated all profit.

The companies estimate that the advance in the rate bases asked would increase their gross revenue approximately 3½ per cent. It would not alter the fundamental rate plan, but would afford an increase in revenue. The petition was signed by W. M. Barrett, president of the Adams; G. C. Taylor, president of the American; T. W. Leary, president of the Southern, and B. D. Caldwell, president of the Wells-Fargo Company, and was presented by T. B. Harrison, George L. Shearer and Charles W. Stockton, as counsel. Mr. Harrison said the companies represented 92 per cent of the railroad mileage of the country and 95 per cent of the express business.

Prompt Filing of Rate Protests Necessary.

In a general notice to the public the Commission has declared that it is not its intention to suspend for investigation every advance in rates proposed by the railroads; therefore if anyone desires to protest against an advance the protest should be filed with the Commission as far in advance of the effective date of the proposed rates as possible. The Commission also sent a notice to the railroads requesting them to file, with new tariffs, a concise statement of the proposed changes in the rates, so that time required to examine the new tariffs may be saved.

The notice to the carriers said:

"The Commission desires not only to deal with these matters justly in the first instance, but, with due consideration for circumstances, to finally dispose of investigation and suspension cases at the earliest practicable date following the suspension. To this end the Commission requests that, in connection with the filing of tariffs carrying increased rates, fares or charges, the proper officer of the carrier, or the agent who issues the tariff, shall present to the Commission a concise statement of the increases proposed in the tariff, showing in a general way the measure thereof and the reasons therefor. This will be not only of assistance to the Commission but of benefit to all concerned, and will obviate the necessity of continuing the practice heretofore followed or endeavoring to communicate with the carriers as to the reasons relied upon to justify proposed increases, in connection with which it has often developed that action had to be taken before reply was received, and may possibly sometimes prevent suspension of tariffs which ought not to be suspended."

In its notice to the general public the Commission said:

"While the law authorizes the Commission to suspend proposed increased rates, fares or charges, it does not contemplate that such suspension will necessarily follow every request therefor, but does contemplate that the power will be exercised with judgment and due consideration for circumstances and conditions.

"In the exercise of that power the Commission desires to act intelligently and to have opportunity to exercise a reasonable discretion in the matter before the increase in question becomes effective. It is, therefore, important and very desirable that such protests, if made, should be made at the earliest practicable moment so that the members of the Commission can be advised in the premises before determining what action they will favor. In instances it has been necessary to deny requests for suspension because they came so late that it was impossible to act upon them intelligently, and sometimes they are so late as to render affirmative action impossible even if it were desired to take it.

"The Commission wishes to exercise this power in every case where it ought to be exercised and to withhold exercise of it in every instance in which it ought to be withheld. It desires to act intelligently and to do substantial justice as nearly as that can be judged upon a partial showing, which is all that can be had pending full hearing.

"To the end that this line of work may be conducted in an orderly and proper manner the Commission requests that when such protests are to be made they be made as far in advance of the effective date of the rate, fare or charge protested against as is possible, and calls attention to the fact that because of the short time afforded it may be necessary to deny suspension in instances in which the protest is not filed with the Commission at least ten days prior to such effective date."

Report on Louisville and Nashville.

THE Commission sent to the United States Senate the last part of February its report on the investigation of the Louisville and Nashville system, in which the road is charged with acquiring competing lines, and with carrying on for years at a cost of millions of dollars an elaborate political and publicity campaign to eliminate competition and influence public opinion.

The report was written before the Supreme Court handed down its opinion holding that the Commission did not have power to force the company to submit its correspondence to scrutiny. Senator Lea, of Tennessee, last spring introduced a resolution authorizing the investigation, and its main object was to discover whether the Louisville and Nashville through control of the Nashville, Chattanooga and St. Louis Railway and smaller lines, had restrained competition, and whether the one-time control of the Louisville and Nashville by the Atlantic Coast Line operated to the same end, and what amounts of money the Louisville and Nashville had contributed to political activity.

The Commission qualifies its declaration that the Louisville and Nashville has wilfully restrained competition by pointing out that in some instances its energies were directed to meet the competition of other large systems, and passes over the question of whether in all instances the course pursued was contrary to the public interest.

Rates on Explosives Held Excessive.

THE Commission has issued a decision declaring as unreasonable the Southern Classification of double first class on "all other high explosives" to the extent that it exceeds the first class rates. Included among these explosives is dynamite. The Commission decided that the railroads' plea that the higher rates are dictated by reason of the danger in hauling high explosives is not conclusive.

"Since the establishment of the carriers' bureau for the safe transportation of explosives and other dangerous articles," said the Commission, "and the promulgation by the Commission of rules for the transportation of explosives, there has been a marked decrease in the number of accidents due to explosions or fires in the transportation of explosives with resulting decrease in loss of life and property."

Important Coal and Coke Company Loses Rate Case.

THE Commission has issued a decision dismissing the complaint of the New England Coal and Coke Company, against the Norfolk and Western and other railroads, and affirming that the roads have a legal right to assess a reasonable charge for dumping coal into boats from their piers in the harbors of Norfolk and Newport News, Va., in addition to the regular transportation rate applying to the port on business destined beyond the Virginia Capes.

"Rates published by carriers for the transportation of goods from one point to another ordinarily include the charges for receipt, conveyance and delivery," said the Commission; "nevertheless, it cannot be said that delivery must in all cases be made in the same manner. With the development of modern devices for the expeditious unloading of goods, there must be a corresponding development in our conception of the duty of carriers with reference to delivery. Unless the word 'delivery' is susceptible of some elasticity of definition, we must take the anomalous position that carriers, in spite of their large investments in modern facilities for unloading, must make such delivery as was made in the days when such facilities were unknown.

"There is nothing in the act which prohibits the separate publication of charges for services of this kind. It is specifically provided in section 6 that the schedule shall 'state separately all terminal charges, storage charges, icing charges, and all other charges which the Commission may require,' as well as 'any rules or regulations which in any wise change, affect or determine any part of the aggregate of such aforesaid rates, fares and charges, or the value of the services rendered.' The plain intent of the whole section is that all matters which enter into or aid in determining the whole or any part of the charge imposed by the carrier for the services rendered shall be so published that they may be plainly and unmistakably ascertained by the public. The separate publication of charges of this kind not only makes possible a more accurate allocation of the carrier's revenue and expenditures, but removes the uncertainty sometimes occasioned by imposing a blanket charge for a number of services of different kinds."

Court Rules Railroad Insurance Illegal.— The Common Pleas Court at Cincinnati, has ruled that the million dollar insurance fund of the Baltimore and Ohio Southwestern Railroad, obtained by contributions from the salaries of its employes, is illegal.

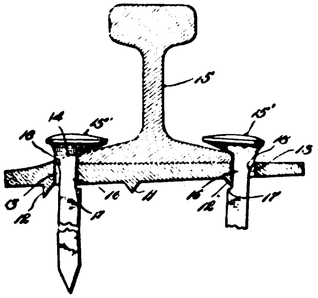
The Court upheld the contention of the attorneys for Joseph Bailey, a switchman, who sued for the amount he had contributed to the fund, claiming that the contributions were compulsory. Attorneys say the case will be carried to the United States Supreme Court, and if the Common Pleas Court's ruling is upheld the entire fund will have to be distributed among those who contributed to it.

Railway Patents Recently Granted by U. S. Patent Office

IN this issue the "Railway World" begins a new department in which will be given from month to month, a brief summary of the more important patents granted by the United States Patent Office, covering inventions which apply to the operations of steam or electric railways.

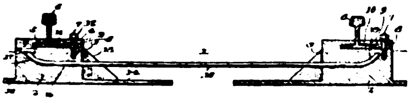
While it will not always be possible to present even a brief summary of all patents granted, an effort will be made to include all the more important ones likely to prove of real interest to the operating and mechanical departments.

1,129,498. SELF-LOCKING SPIKE AND TIE-PLATE. Olaf Sigvart Lund, Bancroft, Iowa. Filed Mar. 18, 1914. Serial No. 825,610. (Cl. 238—2.)



A tie plate provided with ribs arranged to extend transversely of the tie, said ribs comprising a center rib having both sides inclined to the bottom surface of the plate and two lateral ribs each having its outer side perpendicular to the bottom of the plate and its inner side inclined with respect thereto.

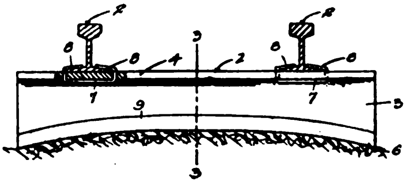
1,129,747. RAIL-TIE. Christian Somershoe, Philadelphia, Pa. Filed Sept. 18, 1914. Serial No. 862,365. (Cl. 238—6.)



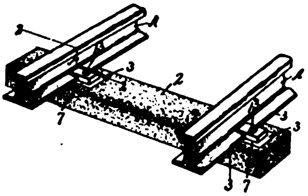
A rail tie including end members comprising an elongated substantially rectangular base plate, a block integrally formed with the base and projecting thereabove, said block being arranged adjacent the outer end of said plate, a truss connecting the inner end of the plate with the block, the said block having an upper inner horizontally straight face providing a rest for a rail, said top, adjacent the outer portion thereof being formed with an inwardly extending flange which is adapted to engage with the outer base flange of a rail, the inner horizontal wall of the block being formed with spaced threaded studs, a rail clip having spaced openings passed over the studs to receive the studs and engaging the inner base flange of the rail, nuts for the studs, each of the said blocks to the opposite sides of its truss brace being formed upon its inner face with a longitudinally extending channel, the rear portion of which being rounded upwardly toward the upper corner of the block, rods having their ends bent and arranged within the channels for connecting the blocks.

1,129,163. RAILROAD-TIE. Harry Brown, Canton, Pa. Filed Mar. 9, 1914. Serial No. 823,568. (Cl. 238—5.)

1. A rail tie consisting of an elongated arcuate base plate being curved from end to end, upstanding flanges formed on the longitudinal edges of the base plate, an enlarged upstanding flange formed integral with the base plate centrally of the longitudinal edges thereof, laterally extending flanges formed on the upper edge of said last named flange, said last named flange extending the full length of the base plate and being horizontal upon its upper face and arranged to support rails.

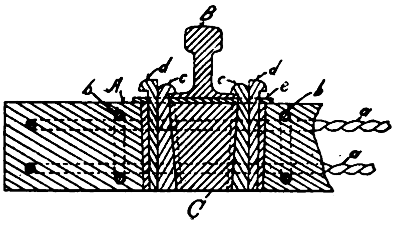


1,128,668. COMBINED TRACK-GAGE AND RAIL-FASTENER. David S. Earll, Syracuse, N. Y. Filed Oct. 16, 1914. Serial No. 866,916. (Cl. 238—2.)



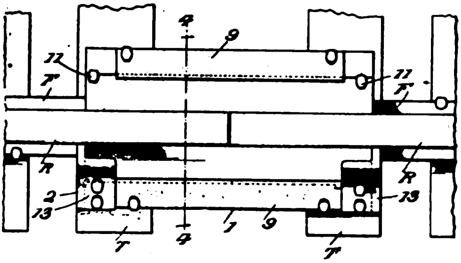
1. In a combined track gage and rail fastener, the combination with a concrete tie, of inverted U-shape plates embedded in the tie in spaced relation from center to center corresponding to the gage of the track and provided with openings in their sides to permit the concrete to knit therethrough, each plate having its top provided with a central lengthwise slot therethrough, terminating in rectangular enlargements for receiving the heads of clamping bolts, rail-engaging clamps seated in said slots and abutting against the ends thereof, and clamping bolts passed through the clamps and slots and engaged with the under sides of opposite walls of said slots.

1,129,709. RAIL-FASTENING. John S. Miller, Truro, Nova Scotia, Canada. Filed Aug. 6, 1913. Serial No. 783,303. (Cl. 238—4.)



The combination of a tie, a metallic insert formed of a single piece of material and embedded in the tie including spaced sockets connected by a relatively thin web, the adjacent walls of the spaced sockets converging downwardly to the bottom of the tie whereby the sockets are wider at their lower ends than at their upper ends, a plate having apertures coinciding with the sockets of said insert, a rail on said plate between the apertures thereof, rail engaging elements fitted in each alining aperture and socket and having an inclined side fitting the diverging wall of the respective socket, and keys interposed between the rail engaging elements and the adjacent walls of the socket.

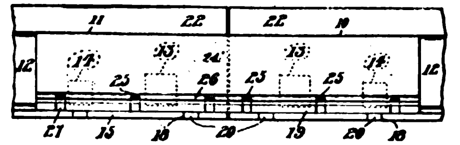
1,129,098. RAIL JOINT AND CHAIR. JOHN S. JACKSON, Clinton, Ill., assignor of one-half to Frederick Ball and W. D. Barnett. Filed May 25, 1914. Serial No. 840,792. (Cl. 239—6.)



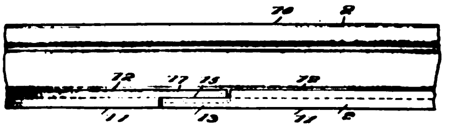
1. The combination with the meeting ends of a pair of rails having openings through their webs, of a one-piece base block having an inverted T-shaped slot extending longitudinally throughout its upper portion and adapted for the reception of the base flanges and webs of the rails, the material to each side of said slot being provided with notches alined with the openings in said rails, pins passing through said alined notches and openings, undercut longitudinal ribs on said base block and longitudinal bracing and pin retaining plates between said undercut ribs and the under sides of the heads of the rails.

1,129,264. RAIL-JOINT. ANDREJ WJASANKO, Rossiter, Pa. Filed Nov. 5, 1914. Serial No. 870,333. (Cl. 239—9.)

1. A rail joint comprising in combination with the end portions of adjacently positioned rails provided with transverse openings through the webs thereof, angular engaging plates having edge notches in their base flanges, projecting lugs carried by said plates inter-engageable with the base flanges of said rail ends, rectangular projections carried by said plate adapted for seating within the said web opening, and angular locking plates overlying said engaging plates and provided with openings in vertical alinement with the notches of said engaging plates.



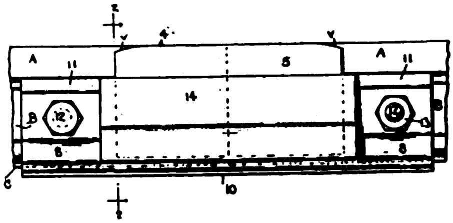
1.128,536. RAILWAY-RAIL SUPPORT. LUCY A. SHRADER, Elmira, N. Y. Filed Nov 10, 1914 Serial No. 871,309. (Cl. 238—5.)



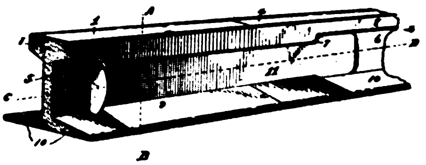
1. A device of the class described comprising rail supports adapted to be disposed in longitudinal alinement beneath railway rails and having ribs for bearing against the flanges of said rails, the terminal of one of said supports having outer tongues and an intermediate tongue spaced apart and extending longitudinally thereof with the lower faces of the tongues flush with the bottoms of the supports and the other support having downwardly and outwardly opening sockets to receive the outer tongues and an intermediate downwardly opening socket to receive the intermediate tongue.

1,128,683. RAIL-JOINT. HUGH THOMAS HUGHES Youngstown, Ohio, assignor of one-half to Shelley M Strain, Youngstown, Ohio. Filed June 24, 1914. Serial No. 847,030. (Cl. 238—3.)

1. The combination with the meeting ends of two rails, of a fish plate having a base portion underlying approximately half the base of the rail ends upon one side, a connecting member complementary to said fish plate including a base portion underlying approximately half of said rail ends upon the side opposite and including opposite end flanges arranged to lie against the web of said rail ends with an intermediate socket-forming offset, a block in said socket having a shoulder to receive the heads of the rail ends with an upstanding flange adapted to engage the tread of a car wheel passing over said rail ends, and means to connect said fish plate, block and connecting member to said rail ends.

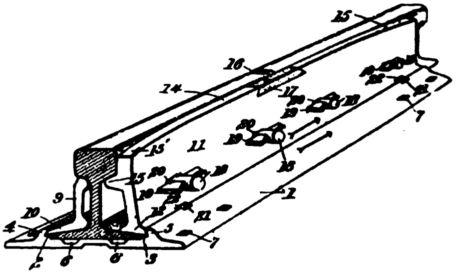


1,129,180. RAILWAY-RAIL JOINT ABRAM DRIEDGER, Osler, Saskatchewan, Canada. Filed July 27, 1914. Serial No. 853,385. (Cl. 239—9.)



1. A rail-way rail joint comprising rails having flanges positioned to form channels under their heads and above their base-flanges and stops on the webs of the rails; joint-plates adapted to engage said channels and extend across the meeting ends of the rails, heads on the plates adapted to engage the ends of the flanges on one rail and hooks on the plates to engage the stops on the other rails

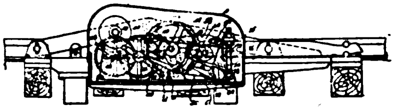
1,129,622. RAILWAY-RAIL JOINT. RUDOLF AXMAN, San Francisco, Cal.; Julia A. Axman executrix of said Rudolf Axman, deceased. Filed Feb. 24, 1913 Serial No. 750,385. (Cl. 239—3.)



1 An improved rail joint comprising a base plate having a longitudinal channel adapted to receive a rail base and on each side an undercut channel the outer channel being inclined with relation to the longitudinal median line of said plate, inner and outer side plates having lateral feet engaging the undercut channels, the outer plate having a wedging engagement with its channel, the edges of said lateral feet and the overhanging edges of said undercut channels being provided with complemental notches and adapted to receive spikes, wedging means for preventing separating movement of the upper edges of

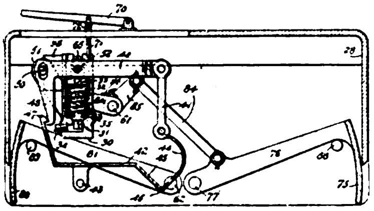
said side plates, said outer side plate being provided with an integral bridge having inclined approaches and running parallel with the top and sides of the rail head.

1,129,205. AUTOMATIC TRAIN-STOP. **Elmer M. Jones**, Atlanta, Ga., assignor to Jones Signal System Company, Atlanta, Ga., a Corporation of Georgia. Filed Sept. 4, 1913. Serial No. 788,106. (Cl. 246—59.)



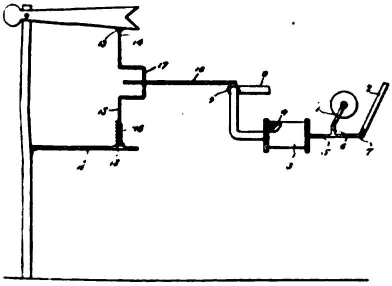
1. In a device of the character described, the combination of a normally active ramp, a movable ramp, both ramps being adapted to act on a train controlling mechanism, a motor for operating the movable ramp, a latch for holding the movable ramp in clearing position, and a magnet for controlling the movement of the movable ramp by the motor and the action of the latch.

1,129,201. AUTOMATIC TRAIN-STOP **Elmer M Jones**, Atlanta, Ga., assignor to Jones Signal System Company, Atlanta, Ga., a Corporation of Georgia. Filed May 22, 1911. Serial No. 628,832. (Cl. 246—59.)



1. The combination, with means on a vehicle for initiating a danger indication, and means on the vehicle for counteracting such initiation, a stationary member along the path of travel for operating the first mentioned means, and a movable member adapted to engage and operate the second mentioned means.

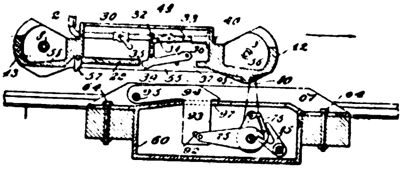
1,129,708. AUTOMATIC TRAIN-STOP **Francis H. Miller**, Canton, Ohio. Filed Apr. 22, 1914. Serial No. 833,701. (Cl. 246—59.)



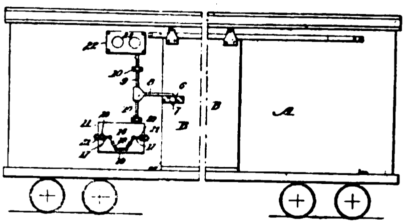
1. In a track obstacle, the combination with a semaphore, of an arm hingedly connected at one end to the standard of the semaphore below the signal blade, a vertical rod, and universal joints connecting the upper and lower ends of said rod with the bottom edge of the signal blade and the upper surface of said arm respectively whereby the rod may be moved from inactive to active position and vice versa in the movement of the signal blade.

1,129,200. AUTOMATIC TRAIN-STOP AND SIGNAL MECHANISM. **Elmer M. Jones**, Atlanta, Ga., assignor to Jones Signal System Company, a Corporation of Georgia. Filed Oct. 14, 1910. Serial No. 587,053. (Cl. 246—59.)

1. The combination of a casing adapted to be located along the trackway, a projecting rib along the upper face of the casing, a pivoted actuator adapted to stand normally alongside of said rib, mechanism for raising said actuator, means on the vehicle for operating said mechanism, and an operating member on the vehicle adapted to engage the actuator when raised.



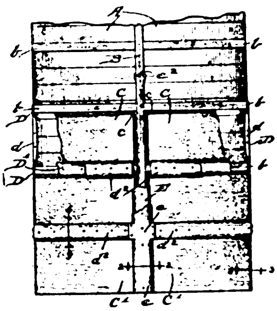
1,128,365. PROTECTOR FOR FREIGHT-CAR DOORS. **Louis Rothholz**, New York, N. Y. Filed Jan. 13, 1914., Serial No. 811,886. (Cl. 70—16.)



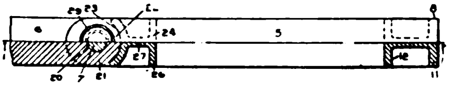
1. A protector for inclosures of the character described, comprising a cover for the inclosure, a pair of oppositely sliding bolts for locking the cover on the inclosure, separate means for actuating said bolts, and resilient means connecting said bolt actuating means for normally and yieldingly holding said bolts in locked position.

1,128,373. METALLIC CAR-ROOF. **Harry H. Schroyer**, Chicago, Ill., assignor to The Acme Supply Company, a Corporation of Illinois. Filed June 15, 1911. Serial No. 633,297. (Cl. 108—5.)

In a device of the class described retaining members secured to the ridge and cross members comprising a relatively stiff metal strip, the central portion thereof substantially flat, the opposite edges thereof bent in two different planes, a thinner strip bent closely around said stiff strip and beaded completely over the edges of the same affording a smooth contact surface, and a plurality of pans, the flanged edges thereof engaged beneath said bent plane edges of the metal strip and said contact surface bearing down on the bottom of the pans to hold them in the plane of the car roof.

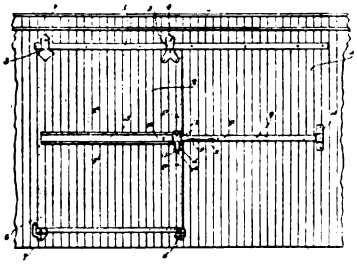


1,128,347. DRAFT-YOKE FOR RAILWAY-CAR DRAFT-RIGGING. **William A. Mitchell**, Sedalia, Mo., assignor to William H. Miner, Chicago, Ill. Filed Feb. 17, 1913. Serial No. 748,794. (Cl. 213—42.)



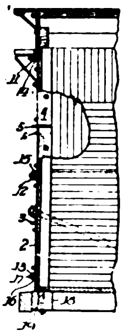
A draft yoke comprising a pair of limbs, a transverse slot between said limbs at one end, a member near either end connecting said limbs, each of said members being I-shaped in horizontal section.

1,128,420. SLIDING-DOOR FASTENER. WALTER W. DECKER, Minneapolis, Minn. Filed May 8, 1914. Serial No 837,100. (Cl. 70—102.)



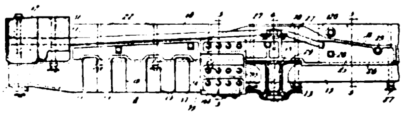
1. The combination with a car body and a door slidably mounted thereon, of a lock device comprising a lock bar secured to one of the members at one end, extending in the direction of the travel of the door, and arranged to permit said door to slide between said car body and lock bar and a lock head secured on the other of said members and slidable on said lock bar, and means for locking together said bar and head, to secure the said door in different positions.

1,129,769. STEEL END FOR CARS. WILLIAM ERASTUS WILLIAMS, Chicago, Ill. Filed Feb. 19, 1914. Serial No. 819,683. (Cl. 105—192.)



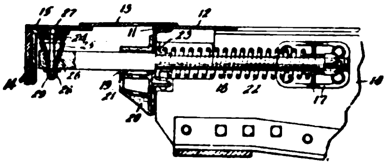
1. In a car end, the combination with a metal sheet of uniform thickness folded on parallel lines to form an internally plane structure having spaced horizontal ribs of a thickness double that of the sheet, of wood sheathing transverse with respect to the ribs and secured to the plane face of the sheet.

1,128,346. DRAFT-ARM. WILLIAM H. MINER, Chicago, Ill. Filed Feb. 28, 1914. Serial No 821,671. (Cl. 105—76.)



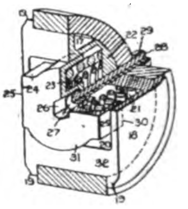
1. In a car underframe, the combination with wooden sills, of a draft arm secured thereto, said draft arm comprising two members overlapped and secured together between the bolster and the end sill of the car, the inner member of the draft arm extending over and to the rear of the body-bolster and secured to the wooden sill and adapted to brace the latter, the front member being also secured to the sill and bracing the latter.

1,128,355. BUFFER-PLATE-SUPPORTING MEANS. JOHN F. O'CONNOR, Chicago, Ill., assignor to William H. Miner, Chicago, Ill. Filed Feb. 28, 1914. Serial No. 821,669. (Cl. 213—39.)



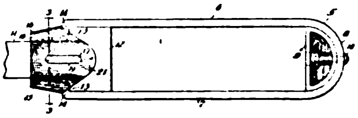
1. In a car provided with buffing mechanism having side stems, the combination with a buffer plate and means connecting said plate with the ends of said stems, said means permitting vertical and longitudinal adjustment between said stems and said plate, substantially as specified.

1,128,353. DRAFT-YOKE FOR RAILWAY-CAR DRAFT-RIGGING. JOHN F. O'CONNOR, Chicago, Ill., assignor to William H. Miner, Chicago, Ill. Filed Feb. 21, 1913. Serial No. 749,906. (Cl. 213—42.)



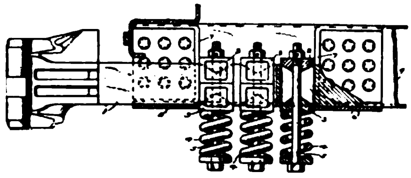
In a railway draft rigging the combination with a compression resisting member of a draft yoke adapted to receive said member, the draft yoke being provided at its rear end with a spring cage, springs within the same, a spring cap engaging said springs, a bolt slidably connecting the spring cap to the draft yoke, the spring cap being provided with a rearwardly extended flange adapted to telescope with the spring cage on relative movement of the spring cap and draft yoke.

1,128,374. DRAFT-YOKE FOR RAILWAY-CARS. HARRY F. SCHWARTZENBERG, Chicago, Ill., assignor to William H. Miner, Chicago, Ill. Filed Mar. 9, 1914. Serial No. 823,281. (Cl. 213—42.)



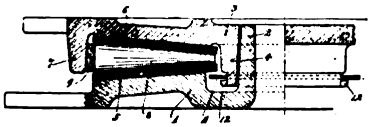
1. In a draft rigging for railway cars, the combination with a draw bar having the usual shoulders on top and bottom thereof, of a yoke having the limbs thereof provided with inwardly extending shoulders near the front ends thereof, said shoulders engaging and coöperating with the draw bar shoulders, the ends of said yoke being also forwardly and inwardly extended in front of the shoulders thereon, said extensions bearing against the draw bar shank, and means for holding the yoke in position on the draw bar, said means including two U-shaped members having over-lapped slotted sides, each of said members having an inclined wall fitting over the said ends of the yoke strap in front of the shoulders thereon, and a key passing through said U-shaped members and the draw bar.

1,129,297. FRICTIONAL-RESISTANCE DEVICE. JOSHUA J. JONES, Pittsburgh, Pa., assignor, by mesne assignments, to Union Draft Gear Company, a Corporation of Illinois. Filed Dec. 9, 1908. Serial No. 466,601. (Cl. 213—64.)



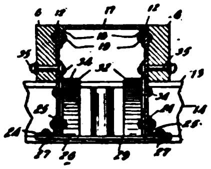
1. In a friction draw-gear and buffing apparatus, the combination with a draw-bar, of a plurality of yielding resistance mechanisms mounted on the draw-bar and spaced apart each comprising opposing laterally movable friction blocks, a coacting wedge on the draw-bar and a spring for resisting the lateral movement of the blocks and stops for successively limiting the longitudinal movement of said mechanisms to cause the successive serial action of said yielding resistance mechanisms upon longitudinal movement of the draw-bar.

1,128,743. CENTER-BEARING FOR RAILWAY-CARS. **Lee Warren Barber**, Chicago, Ill., assignor to Standard Car Truck Company, Chicago, Ill., a Corporation of New Jersey. Filed Mar. 9, 1914. Serial No. 823,321. (Cl. 64—64.)



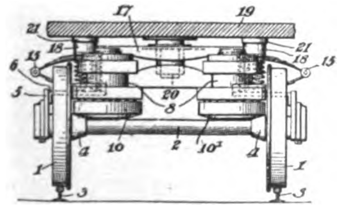
1. In a center bearing, the combination with upper and lower bearing members and individually formed annular wearing plates applied thereto, of radially disposed rollers interposed between said wearing plates, said bearing plates having hubs telescoped, one into the other, a retaining device applied to the outer of said hubs and immediately underlapping the inner portion of the adjacent wearing plate, the bearing plate having the inner of said hubs being provided with a surface engaging the adjacent wearing plate, but terminated short of the inner edge thereof to afford clearance for said retaining device.

1,128,298. UNDERFRAME FOR RAILWAY-CARS. **Charles E. Dath**, Chicago, Ill., assignor to William H. Miner, Chicago, Ill. Filed Mar. 4, 1914. Serial No. 822,338. (Cl. 105—76.)



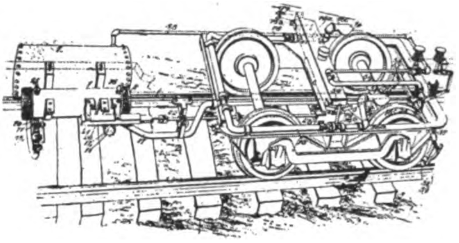
1. In an underframe for railway cars, the combination with wooden center-sills, of metal plate center-sills secured to the inner sides of the wooden sills and extending from end to end of the car, a channel mounted between and secured to the inner sides of said metal sills and extending from end to end of the car and angles along the lower edges of said metal sills.

1,128,[illegible]. CAR-TRUCK. **Conrad Schütz**, Philadelphia, Pa. Filed June 18, 1912, Serial No. 704,282. Renewed July 14, 1914. Serial No. 850,996. (Cl. 105—135.)



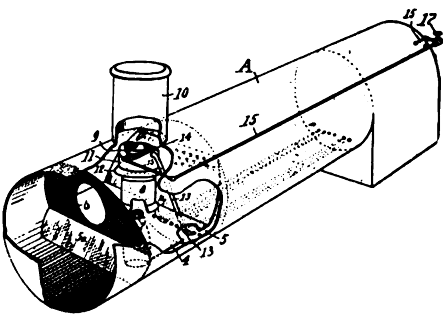
1. A car truck comprising an axle, and traction wheels and conical bearings on said axle, in combination with a frame having bearings with journals therein, wheels having beveled faces engaging said conical bearings and spindles disposed in said journals, antifriction mechanism disposed between said last named wheels and bearings, caps on said spindles, and antifriction mechanism disposed between said caps and bearings.

1,129,127 WHEEL-FLANGE-LUBRICATING MECHANISM. **Robert H. Scroggins**, Vienna, Va., assignor of one-half to Joseph H. Bradley, Washington, D. C. Filed Nov 10, 1913. Serial No. 800,165. (Cl. 184—3.)



1. In combination with a car and its truck, a lubricant cylinder, a set of lubricant distributing nozzles mounted on the car truck adjacent to the wheels and adapted to move into operative position, means holding said nozzles out of operative position during the straight-way travel of the car, and adapted to release said nozzles to permit them to move into the operative position during the time the car is turning a curve, a pipe line from the lubricant cylinder to the distributing nozzles, a valve in the said pipe line, means connecting the truck and the valve for opening and closing the valve according to the position of the truck, and pneumatic means for forcing the lubricant out of the cylinder when the said valve is at the open position.

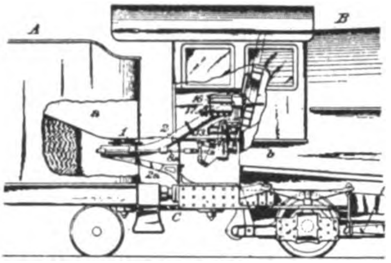
1,128,476. SMOKE-CONSUMER FOR LOCOMOTIVES. **Edward J. McGrouary** and **Milford S. Van Dresar**, St. Paul, Minn.; said Van Dresar assignor to said McGrouary. Filed Sept. 14, 1910. Serial No. 581,969. (Cl. 110—50.)



In combination with a locomotive tubular boiler, a fire box and smoke stack, a downwardly directed plate located in front of the boiler and extending downwardly from the front boiler head, then forwardly in spaced relation with the bottom of the locomotive smoke box, the exhaust nozzle of the locomotive projecting through said plate, a hood arranged below the smoke stack, a pipe section within said hood and coaxial therewith, said pipe section at its upper end being connected with the hood and its lower end spaced to constitute an open bottomed hood and pipe, pipes leading from the upper portion of the space between the hood and inner pipe section to selected ones of the boiler tubes and blast nozzles discharging into the mouths of the last named pipes at the upper end of said hood.

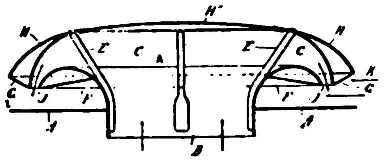
1,128,428. MECHANICAL STOKER **Albert G. Elvin**, Somerville, N. J Filed Oct. 21, 1913. Serial No.

796,377. (Cl. 110—113.)



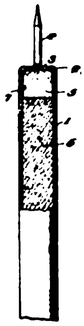
1 In a mechanical stoker, the combination of a fuel receptacle adapted to be supported on a locomotive and to communicate with a firing opening in the firebox thereof, two fuel shovels mounted to swing horizontally in said receptacle, a fuel receiving hopper adapted to be supported on a locomotive tender below the fuel space thereof, a conveyer casing connected rigidly to the fuel receptacle, and connected with the capacity of relative movement to the fuel receiving hopper, a plunger working in said conveyer casing, a fluid pressure motor actuating said plunger, and two fluid pressure motors, each actuating one of said shovels.

1,129,653. RAILWAY-CARRIAGE VENTILATOR. Frederick Henry Addis, Ajmer, India. Filed Jan. 9, 1914. Serial No. 811,237. (Cl. 98—4.)



In a railway car roof ventilator a vertical uptake shaft, a supporting plate on said uptake shaft, an annular suction funnel of sectional area diminishing from its junction with the uptake shaft to its outlet, said funnel so curved that the direction of outflow is substantially parallel to that of inflow, a transparent covering plate, an annulus connecting the circumference of the covering plate to the outer circumference of the suction funnel orifice such annulus inclined at an angle of about 45° to the supporting plate, and an annulus connecting the outside of the suction funnel at about its junction with the uptake to the inner circumference of the suction funnel orifice said annulus sloping downward from the uptake toward the said orifice.

1,129,644. RAILWAY SIGNAL-FUSEE. Robert M. Clark, Newton Center, Mass., assignor to Central Railway Signal Company, Pittsburgh, Pa., a Corporation of New Jersey. Filed May 5, 1914 Serial No. 836,546. (Cl. 102—24.)



1. A spike end fusee comprising a fiber tube, a plug fitting within one end thereof and having at its outer end a projecting spike, the end wall of the fusee crimped and turned inward against the outer end of the plug and cemented thereto, the spike passing through the crimped and turned in end of the tube, and a burning compound within the tube to receive the inward end thrust of the plug when the spike is forced into an object for supporting the fusee.

STATE COMMISSIONS.

California.— The State Railroad Commission has made permanent its temporary order, issued a year ago, reducing express rates. The loss to Wells, Fargo & Co. is estimated at $750,000 a year.

Georgia.—In response to a petition from the Atlanta, Birmingham & Atlantic and the Fitzgerald, Ocilla & Broxton, the Railroad Commission has given notice that it has no authority to authorize a chartered common carrier to discontinue the operation of any part of its line.

Massachusetts.—By the decision of the Public Service Commission the New Haven Railroad will be permited to increase the one way single fare passenger rates outside the suburban zone from a 2¼ to a 2½ cent a mile basis. The petitions of the Boston & Maine and Boston Albany railroads were turned down, principally because the form of the proposed tariffs was unsatisfactory and these roads asked for increases not included in the New Haven's petition. The Commission suggests, however, that the Boston & Albany and the Boston & Maine file applications for increases in rates on a basis similar to the New Haven schedules.

Michigan.—In a recently announced decision, the Railroad Commission completed its orders allowing the Southern Peninsula Michigan railroads their five per cent increases, for which they have been petitioning for about two years. Counting in the latest order, an increase averaging five per cent has been granted the railroads on everything they carry in the freight lines, with the exception of coal, coke, iron ore and sugar beets. Some of the advances date back to last fall, while those granted now on brick, cement, tile, clay and starch bear date of to-day. Taking the increases granted the roads and those refused into consideration, considerable food for thought is given those who are searching for data regarding the condition of the railroads in order to determine the need of a passenger rate increase.

According to experts, the raises which the Michigan Commission has allowed the roads in freight rates will net the railroads an increase of about $1,200,000 a year.

New Jersey.—The Pennsylvania Railroad Company filed with the Board of Public Utility Commissioners of New Jersey revision of fares, which would result in increased charges for carrying certain classes of passenger travel, these increases being made because the business affected was unprofitable.

At the hearing before the New Jersey Board, evidence was presented which, the railroad is convinced, proved conclusively that the intrastate travel in New Jersey was not remunerative, but the Board refused to approve the increases, and it has, therefore, been decided by the Pennsylvania Railroad Company to carry the case to the Courts, as it is felt that the decisions of the United States Supreme Court support the contention of the railroad.

Pennsylvania.—The Public Service Commission has issued an order that the Lehigh Valley, the Central Railroad Company of New Jersey, the Delaware, Lackawanna and Western, the Ironton, the Lehigh and New England and the Bangor and Portland railroad companies establish joint rates of not more than 63 cents per ton of 2000 pounds for the transportation of cement to Allentown from the Nazareth District.

Texas.—The Railroad Commission has issued an order changing the place from Austin to Dallas for holding the hearing on the application of the railroads for an increase in freight rates, the increase asked for being about fifteen per cent over the present rates. The hearings will commence March 4th.

LEGISLATION.

Unlimited Railway Liability.— Reference is made elsewhere to the Cummins Bill which was passed during the closing sessions of Congress and which abolishes the limited liability of railways and gives every shipper the right to sue for the full value of goods lost or destroyed en route. This bill apparently causes all railroads to abolish classification of freight which are now transported at lower rates under contracts in which the shipper waives the right to recover damages in case of loss in transit. According to the uniform bill-of-lading, which has been approved by the Interstate Commerce Commission, the railroads are entitled to a ten per cent increase in rates where there is no limit imposed on the liability. The Cummins Bill would appear, therefore, to permit an increase of ten per cent in all rates of this character. It is believed, however, that the railroads will make no effort to take full advantage of this law but will suggest certain readjustments of these rates, and of existing rules, which will equitably meet the provisions of the new act.

Kansas Railroad Bills.—The Railroad Committees of the House and Senate of the Kansas Legislature, recently held a hearing on the extra crew, train limit and other bills affecting railroads and their employes. Officers of the railroads and representatives of the employes appeared and presented arguments. A. De Bernardi, general superintendent of the Missouri Pacific, said that if the bill were passed, for every extra brakeman added it would be necessary for many roads to lay off two trackmen as a measure of economy, and that the trackmen were more essential to safety than the extra brakemen. Representatives of the roads also brought out the fact that the trainmen had never attempted to negotiate with the officers of the road for exra brakemen.

Terminal Bill Passes New York Senate.—The New York Senate has passed a bill authorizing a railroad with the consent of the New York Board of Estimate & Apportionment to acquire any stocks or bonds of a corporation contracting with the city for operating terminal facilities in Brooklyn and Queens which contracts provide for handling over such terminal road of freight moved by water or partly by rail or water without discrimination.

The object of this bill is to enable the city to make a contract with a number of eastern trunk lines for the operation by them of the terminal and water front railroad in Brooklyn, a part of which is owned by the city.

Missouri Roads Win Fare Point.—The Railroad Committee of the Lower House of the State Legislature of Missouri has endorsed an amendment to the Public Service Commission bill permitting that body to fix a maximum passenger rate of three cents a mile and immediately to establish a rate of 2½ cents.

Public Ownership Proposed in California.—A resolution urging Congress to purchase and operate the Western Pacific Railroad now run under a receivership, has been introduced in both Houses of the California Legislature.

The resolution declares that unless the government purchases the road it will become allied with other transcontinental systems, and competition be destroyed.

The resolution also declares that operation of the road by the government would afford a test of the feasibility of government ownership of railroad lines.

Advance Passenger Fare Legislation Defeated in Nebraska.—Reports from Omaha state that the Nebraska Legislature has killed the railroad bill increasing intra-state passenger rates to 2½ cents a mile.

"Full Crew" Repeal Bill Introduced in Pennsylvania.—A bill to repeal the "Full Crew" law of 1911, has been introduced in the House of Representatives of the State of Pennsylvania. The measure empowers the Public Service Commission to require railroad corporations to employ an adequate number of men on the trains.

Connecticut Senate Rejects Lower Rate Bills.—The Senate of the State of Connecticut has rejected bills designed to compel the New Haven to give a uniform rate of two cents a mile for passenger traffic and the issuance of 1,000 mile ticket books for $20.00.

No Immediate Passenger Rate Increase in Missouri.—The State Legislature of Missouri has added an amendment to the Public Service Commission bill, making 2½ cents a mile the maximum rate in that State to become effective only when the Commission finds such a rate reasonable and necessary. A second amendment to this bill declares that the Commission in investigating the rate question so determines the physical valuation of railroads before ordering the increased rate.

Since it is generally admitted that from two to five years would be required to make a physical valuation of the railroads the House's action virtually makes an increase before that time impossible. The Public Service Commission bill proper would have increased rates immediately from two cents a mile, the present maximum, or two and a half cents, and would have authorized the commission, after investigation, to grant the railroads a further increase to three cents a mile.

Railway Legislation in Texas.—That the days of railroad "baiting" in Texas are not ended is shown by the unusually large number of bills affecting the railroad interests of the state which are pending in the Legislature. It is claimed by the representatives of the railroads that should the measures which are now under consideration be enacted into laws it would entail an additional burden of many million dollars per annum upon the properties. Most of the pending bills originated with the union labor organizations, and for that reason they are being given strong political support.

Notwithstanding the opposition of the railroads to the bill, which provides that all employes and laborers shall be paid semi-monthly there are prospects that it will be passed finally. It has been introduced and favorably recommended by committees in both the Senate and House. This measure, if it becomes a law, will add about $250,000 annually to the expenses of the railroads, it is claimed.

LEGAL.

Switching Decision by Supreme Court.— The Supreme Court of the United States has handed down a decision which it considered of great importance in railroad circles. The Court sustained an order of the Interstate Commerce Commission directing the Pennsylvania Railroad to make the same switch arrangement at New Castle, Pa., with the Buffalo, Rochester & Pittsburgh Railroad as it makes with the Baltimore & Ohio. This case will establish a precedent which will have to be followed at other places.

Jurisdiction Over State Line.—Three judges of the United States Court at Chicago have ruled that the Interstate Commerce Commission has jurisdiction over an intrastate railroad. Sitting en banc, they ordered dissolved a temporary injunction obtained by the Duluth and Northern Minnesota Railroad last December, restraining the Commission from enforcing its ruling raising the rate on wood pulp. The road extends only fifteen miles and is entirely within the State of Minnesota. Its argument that because it could not do an interstate business it was not amenable to the Commission, was overruled by the Court.

Louisville and Nashville Loses Important Suit.—The United States District Court at Covington, Ky., has refused an injunction asked for by the Louisville and Nashville Railroad which sought to restrain the State Commission from enforcing its order reducing the charges on shipments of grain.

The case was originally tried in 1910 and has gone to the Supreme Court of the United States twice. The latter court finally granted a rehearing and Judge Denison's ruling was on this. About $90,000, representing the difference between the rate the railroad charged and the rate that the Commission ordered it to charge is affected.

Illinois Commission Given Right to Fix Train Service.—The Illinois Supreme Court has held valid Section 51 of the State Utilities Act, which gives the State Utilities Commission the right to fix train service and also to compel companies to carry out orders issued for the benefit of passengers.

Supreme Court Renders Important Damage Decision.—The Supreme Court of the United States has rendered a decision which in interpreting the Hepburn rate law, authorizes the Interstate Commerce Commission to award damages to shippers for unfair rates and discriminations, no matter at what date arising, provided claims were filed before August 28, 1907, which the Court held was the date the act went into effect. The Court held that Henry E. Meeker, a New York coal dealer, was entitled to $116,000 damages from the Lehigh Valley Railroad for claims dating back to 1900. Thousands of other claims were filed within the first year after the rate law went into effect. In the Meeker case the railroad sought to limit recovery to claims within two years before the passage of the act.

Railroad Correspondence Not Subject to Inspection.—According to a decision rendered the latter part of February by the Supreme Court of the United States, correspondence of railroad companies is not subject to inspection by the Interstate Commerce Commission.

The case rose out of a contest between the Commission and the Louisville and Nashville Railroad, in which the Commission attempted to inspect the correspondence of this road in carrying out an investigation ordered by the Senate into alleged political activity of the railroad in Tennessee. The company officials excluded the Commission's inspectors from its files and the Government asked the Federal Courts in Kentucky for a mandamus.

In refusing the mandamus the Court pointed out that the Commission itself had drafted the language of the statute which empowered it to inspect accounts, records and memoranda, and drew the conclusion that the leaving out of specific authorization for an inspection of correspondence was intentional and a recognition that such inspection was not necessary for the proper regulation of railways.

The Court did not pass upon the constitutional right of the Government to pass a law to inspect correspondence.

Two Important State Suits Decided in Favor of the Railroads.—The United States Supreme Court has handed down two important decisions, in each case upholding the contentions of the railroads against State rate making bodies. The Court held unconstitutional the West Virginia two-cent passenger rate law and also declared to be confiscatory the rates on coal fixed by the North Dakota Railroad Commission.

The West Virginia passenger rate decision is considered one of the most important announced by the Court at this session. It declared unconstitutional the maximum passenger rate law of West Virginia in a case brought by the Norfolk & Western Railroad to test the validity of the State statute. The main point in the case was whether a State may compel a railroad to transport passengers at a non-remunerative rate and what constitutes such a non-remunerative rate, and whether the State may permit the railroad to compensate itself by increased freight rates for its loss in passenger rates.

In deciding the case the Court said:

"It is apparent from every point of view that the statutory rate, at most, affords a very narrow margin over the cost of the traffic. It is manifestly not a case where substantial compensation is permitted and where we are asked to enter the domain of legislative discretion, nor is it one in which it is necessary to determine the value of the property employed in intrastate business. It is clear that by the reduction in rates the company is forced to carry passengers, if not at or below cost, with merely a nominal reward, considering the volume of the traffic affected. We find no basis whatever upon which the rate can be supported, and it must be concluded in the light of the principles governing the regulation of rates that the State exceeded its power in imposing it."

In the second case the Supreme Court declared that the coal rates fixed by the North Dakota Railroad Commission are confiscatory and unconstitutional. This decision was rendered in the cases brought by the Northern Pacific and the Minneapolis, St. Paul & Sault Ste. Marie Railroad companies to test the constitutionality of the degree of the North Dakota Commission. The railroads contended that the coal rates were fixed so low as to yield them nothing for the use of their property, although the rates provided a sufficient actual revenue for the movement of coal. They also contended that the decision of the Supreme Court of North Dakota to the effect that freight rates are not confiscatory if merely non-compensatory, is unjust and a violation of the rights of the roads.

The United States Supreme Court once before considered the validity of these rates and sent the case back for an actual test of the rates by putting them in operation for a temporary period. The state conceded that the rates are not compensatory on the capital invested, but contended that they are not confiscatory so long as the slightest remuneration is received.

EQUIPMENT.

Steel Car Equipment for the Southern Railway.—Eight of the most important through passenger trains of Southern Railway have recently been equipped with all steel, electric lighted cars of the most modern design, 57 cars just received from the builders having been placed in service

The steel-frame cars, formerly used in these trains, have been transferred to other through trains, releasing steel-underframe cars to be placed in strictly local trains, releasing wooden equipment.

All this new equipment is in addition to the seven steel dining cars recently placed in service and has been provided in line with the policy of Southern Railway Company to give its patrons the advantage of every possible protection and convenience.

CONSTRUCTION.

New Railroad Bridge Over the Susquehanna River.—The Cumberland Valley Railroad—a part of the Pennsylvania System—will within a short time start work on a modern arch bridge to replace its present steel deck truss bridge over the Susquehanna River at Harrisburg, Pa. The new bridge will cost approximately $750,000. This will be the first construction work of any magnitude to be undertaken by any of the lines of the Pennsylvania System for more than a year.

The bridge over the Susquehanna River at Harrisburg which the Cumberland Valley Railroad is now using is a single track structure of 25 spans, supported by stone piers. The proposed bridge will have 46 spans and will carry two tracks. The present piers will be utilized and a number of additional ones built. The bridge will be 4,000 feet long—the same length as the Pennsylvania Railroad's now famous stone bridge over the Susquehanna River at Rockville, Pa., just above Harrisburg.

The foundations of both the old and new piers have been carried down to rock, which is practically the bed of the river at this point. The Cumberland Valley Railroad's forces have already completed the foundations to an elevation of about one foot above the normal elevation of the water. The balance of the work will be placed under contract within a short time.

The piers of the present Cumberland Valley Railroad bridge at Harrisburg were originally constructed to provide for two tracks, so that it will be possible, by moving the tracks over to one side of the piers, to continue the operation of trains over the old bridge while one-half of the new arch bridge is being constructed. After this the traffic will be carried on the completed portion of the bridge until the other half is finished.

In connection with the construction of the new bridge the Cumberland Valley Railroad will build undergrade crossings at Front and Second Streets in the city of Harrisburg. The grades of these streets have been depressed and concrete abutments constructed to support solid floor steel bridges, which will be covered with concrete in ornamental design. This work will result in the elimination of all grade crossings of the Cumberland Valley Railroad in Harrisburg.

ORGANIZATION NOTES.

Annual Meeting of Railway Signal Association.—The Railway Signal Association held its annual meeting in Chicago during the week beginning March 15th. Predictions were made that within five years there would be no more railway accidents except those due to human fallibility. In addition to the meeting of the Railway Signal Association, the National Railway Appliance Exposition, the Signal Appliance Association, the American Railway Engineering Association and the Roadmasters' and Maintenance of Way Association, also held meetings in Chicago at the same time.

Announcements of a $1,500,000 contract for the installation of 400 miles of mechanical control apparatus on the Brooklyn Subway and Coney Island lines was made at the appliance exposition. The system to be installed practically relieves the engineer or motorman from responsibility, it is said, and makes it impossible for him to operate at danger speed, and makes possible the running of a greater number of trains.

Officers Nominated for the Traffic Club of Chicago.—The Nominating Committee of the Traffic Club of Chicago has reported nomination of officers for the ensuing year, as follows:

For President—
- Fred Zimmerman, Vice-President, C., I. & L. Railway.

For First Vice-President—
- F. L. Bateman, President, Trans-Continental Freight Company.

For Second Vice-President—
- W. O. Davis, D. F. A., American Steel & Wire Company.

For Third Vice-President—
- W. J. Leahy, G. P. A., C., R. I. & P. Ry.

For Secretary—
- W. H. Wharton, Commercial Agent, N. C. & S. L. Railway.

For Treasurer—
- Charles B. Hopper, G. F. A., Goodrich Transit Company.

For Directors for Two Years—
- J. Charles Maddison, Secretary, Montgomery Ward & Company;
- J. C. McAuliffe, Traffic Manager, Butler Bros.;
- C. W. Pitts, G. A., Pass. Dept., Great Northern Railway;
- E. W. Skipworth, A. G. T. M., Sulzberger & Sons Company.

The Annual Meeting will be held March 30, 1915.

Annual Election of Transportation Club of Louisville.—The Transportation Club of Louisville held its regular annual meeting on February ninth. The following are the officers elected: President, F. G. Maus; first vice-president, F. N. Hartwell; second vice-president, C. B. Phelps; third vice-president, Charles Van Overbeke; secretary, S. J. McBryde, re-elected; treasurer, W. T. Vandenburgh, re-elected; directors, J. L. Durrett, E. L. Gross, D. R. Hamilton, Joseph Merrow, Jr., E. R. Oliver, John J. Saunders and J. B. Wathen, Jr.

American Association of Railroad Superintendents.—At a recent meeting of the Executive Committee of the American Association of Railroad Superintendents it was decided to postpone the 1915 convention of the Association to be held in San Francisco, Cal., from May 20th and 21st, the date previously arranged, until August 19th and 20th. Saturday, August 21st, will be American Association of Railroad Superintendents' day at the Panama-Pacific International Exposition.

LABOR.

Wages and Hours of Labor in the Building and Repairing of Steam Railroad Cars.—The Bureau of Labor Statistics of the United States Department of Labor has just published as Bulletin No. 163 a report on wages and hours of labor in the building and repairing of steam railroad cars. The report is based on information obtained from the principal representative establishments in the industry. Figures are presented in this bulletin for rates of wages per hour and full-time hours of labor per week for the years 1907 to 1913 and for full-time weekly earnings for 1910 to 1913.

Full-time weekly earnings of the employes in the principal occupations in this industry in 1913 were 5.5 per cent higher than in 1912; 6.0 per cent higher than in 1911, and 8.9 per cent higher than in 1910; average rates of wages per hour for 1913 were 6.3 per cent higher than in 1912, 6.4 per cent higher than in 1911, and 9.9 per cent higher than in 1910; the full-time working hours per week in 1913 were 0.7 per cent lower than in 1912, 0.4 per cent lower than in 1911, and 1.1 per cent lower than in 1910.

The data for 1913 were obtained from 73 representative establishments and covered over 42,000 employes. The average full-time weekly earnings in 1913 in the principal occupations in these representative establishments were as follows:

Cabinetmakers	$19.03
Carpenters and car builders, wood	17.11
Car repairers	15.15
Fitters	15.99
Laborers	10.58
Machine woodworkers	16.26
Machinists	17.81
Painters	17.77
Pipe fitters	18.56
Riveters and buckers	19.41
Tinners	19.28
Truck builders	15.31
Upholsterers	19.50

In 1913 the full-time hours of labor per week were under 54 in quite a number of the establishments visited and over 60 in but very few. The predominating full-time hours per week were 54 and the average about 56.

TRAFFIC AND RATES.

Effect of Panama Canal on Rail Traffic.—"Railway and Marine News" of Seattle, Wash., publishes an interview with a railroad man, stating that recently he saw on the side tracks at Huntington, Ore., 11 cars of Idaho wheat bound for Portland, to be sent from there by way of Panama Canal to the Atlantic seaboard. This, he said, was the first shipment of Idaho wheat ever carried by the Oregon Short Line to tidewater bound for another seaport. He also mentioned that dried fruits are now moving from the Pacific coast to Atlantic ports at a rate of 26 cents per 100 lb., and canned goods at 30 cents; and large shipments of salmon from Alaska, which have gone principally by rail to Chicago and the eastern seaboard are now going by way of the canal. He also mentioned the case of a piano manufacturing concern in Chicago that has found out that it can ship in carload lots to New York and then by the canal to the Pacific coast cheaper than by rail from Chicago to the same point of destination; and that shipments of household furniture from Rockford, Ill., have moved to Pacific coast points by the same route.

First Solid Through Train between St. Louis and the Pacific Coast.—The first solid through train ever operated between St. Louis and the Pacific Coast will go into service on the 12th day of April. The train will be composed entirely of new all-steel cars and will be run over the Missouri Pacific from St. Louis to Pueblo, Colo., by way of Kansas City, from Pueblo to Salt Lake City, Utah, over the Denver and Rio Grande and from Salt Lake City to San Francisco over the rails of the Western Pacific.

The solid steel cars being built especially for this service will be equipped with anti-telescoping devices and every known modern improvement and safety appliance. The train will be made up of a baggage car, one large modern day coach, a reclining chair car in which no extra charge will be made for seats, a dining car, a Pullman tourist car, a standard Pullman sleeping car and an observation library sleeping car.

Panama Canal Traffic in January.— Ninety-eight vessels passed through the Canal during the month of January, carrying a total of 448,957 tons of cargo. This was the first month since the opening of the Canal in which a gain in the number of vessels has not taken place, as 99 vessels went through the Canal during December. The quantity of cargo carried, however, leads all preceding months, though it is greater by only 156 tons than that carried through in November. Six of the 98 vessels did not carry cargo. The total cargo to February 1st was 2,192,856 tons.

Fourty-four of the vessels were bound from the Atlantic to the Pacific, or westward, and 54 were bound eastward, from the Pacific to the Atlantic. Vessels passing in each direction, and cargo carried are shown for the months of operation in this table:

	Eastbound.		Westbound.		Total.	
Month	Vessels.	Cargo.	Vessels.	Cargo.	Vessels.	Cargo.
Aug. ...	12	57,182	12	49,106	24	106,288
Sept. ..	30	186,776	27	135,262	57	322,038
Oct. ...	40	252,288	44	168,069	84	420,357
Nov. ...	38	242,291	54	206,510	92	448,801
Dec. ...	57	261,680	42	184,735	99	446,415
Jan. ...	54	240,875	44	208,082	98	448,957
Total .	231	1,241,092	223	951,764	454	2,192,856

Latest Import and Export Figures.—Imports during January, 1915, totaled $122,265,267, against $154,742,923 in January, 1914, and $163,063,438 in January, 1913. January, 1915, exports aggregated $267,801,370, compared with $204,066,603 in January of last year and $227,032,930 in January, 1913. Comparing the month's trade with the low points touched in August last, imports have decreased $7,502,623, or 5.8 per cent, while exports have increased $157,433,876, or 142.6 per cent.

The excess of exports over imports for the month was $145,536,103, or practically three times that of January last year and more than double that of January, 1913. In the six months since August last, the monthly trade balance has shifted from an excess of $19,400,396 on the import side to an excess of $145,146,103 on the export side, exceeding that shown by any previous month in the country's history.

Special Train and Car Movements to the Panama-Pacific International Exposition.— Within the next few days, the Southern Pacific Company is under contract to handle special train and car movements that will bring over 15,000 visitors to the Panama-Pacific International Exposition at San Francisco. To move these people, 104 specials will be required, these being distributed through the El Paso, Ogden and Portland gateways. It announced that reservations are coming in as fast as they could be handled.

In addition to the 104 special trains, the Southern Pacific has made arrangements for the handling of upwards of forty private cars with their parties; and from now on up to the month of August, every one of its ten limited and express trains from Eastern connections will be handled in from one to three extra sections. Four of these regulars to be handled in extra sections come via Ogden, three via Portland, and three via El Paso and New Orleans. Inasmuch as each section, in reality, constitutes another train, this means an increase in regular train service from the East of from ten to thirty or forty trains.

From data compiled to show future movements, it is expected by the company that the greatest number of trans-continental visitors will reach San Francisco during June, July and August. Assistant General Passenger Agent, H. R. Judah estimates that the 550 conventions for the exposition will bring between seven and eight hundred thousand people to San Francisco.

GENERAL NEWS NOTES.

Pennsylvania Honors Retired Officials.— On behalf of himself and associated officers of the Pennsylvania Railroad, Mr. Samuel Rea, President of the Company, recently presented two retired veteran members of the official staff with suitably inscribed gold watches. The recipients were Mr. Joseph B. Hutchinson, who retired from active duty on April 1, 1914, and Mr. Joseph T. Richards, who was placed on the "Roll of Honor" to-day.

Mr. Hutchinson was general manager of the Company from 1897 to 1903 and at the time of his retirement was assistant to the Vice-President in Charge of Real Estate, Purchases and Insurance. Mr. Richards was consulting engineer of Maintenance of Way.

The presentation was made in the Board Room at Broad Street Station in the presence of many of the Company's officers in this city. Mr. Hutchinson, at the time of his retirement, had been in the active service of the Pennsylvania Railroad for 50 years and 10 months and Mr. Richards for 44 years and 6 months.

Canadian Railways Contributing to Patriotic Fund.—The officers and employes of the Grand Trunk System have voluntarily contributed more than $40,000 to the Canadian Patriotic Fund. In addition to this, the officers and employes of the Grand Trunk Pacific has contributed a sum of nearly $15,000. The Grand Trunk and Grand Trunk Pacific Railways are also carrying on their pay rolls some six hundred men who have enlisted for oversea service with the various military units who are in receipt of full pay.

Record of the Pennsylvania.—An employe of the Pennsylvania Railroad has compiled the following facts regarding the Pennsylvania System:

Is 11,730 miles long.

Has 26,200 miles of track, enough to reach around the world.

Has 630 miles of four-track railroad; 821 miles of three-track railroad, and 3,717 miles of two-track railroad.

Operates in 13 states where more than half the population of the United States lives.

Normally employs about 220,000 men; almost ten employes per mile of track.

It has 7,561 locomotives, 6,884 passenger cars, 281,590 freight cars.

It operates more than 3,000 passenger trains a day.

It carries more than 500,000 passengers a day.

It operates more than 4,000 freight trains a day.

It handles more than 1,300,000 tons of freight a day.

It normally pays in wages more than $500,000 a day.

It pays 47.4 cents for wages out of every dollar of operating revenue.

It pays 25.2 cents of every dollar of operating revenue for material and supplies.

Its taxes take 4 cents out of every dollar of operating revenue.

It buys about a quarter-million dollars' worth of material every day.

It is owned by approximately 100,000 different shareholders.

It has more than 44,000 women shareholders.

It has about 3,000 all-steel passenger cars in service; one-third of all the steel equipment in the United States.

It was the first railroad to introduce steel passenger equipment.

It was the first railroad to build all-steel box cars.

It has on its roll of honor 4,295 employes who are receiving pensions.

It has paid out in pensions in the past fifteen years more than $10,000,000.

It has 77 employes who have been working for the railroad fifty years and still at it.

It has on its roll of honor 143 men who worked for the railroad fifty years before retiring.

It retires every employe on a pension at the age of seventy years.

It has five vice-presidents on its Western line who have worked for the system upwards of forty years.

It hauls every day to Philadelphia, Baltimore, Brooklyn and Jersey City a quarter million quarts of milk.

It has invested in its signal system approximately $23,000,000.

It has spent since 1902 in improvements resulting in the elimination of 1,052 grade crossings more than $34,000,000.

PANAMA FAIR NOTES.

Opening of Southern Pacific Building.— The building of the Southern Pacific Railway at the Panama-Pacific International Exposition, was formally opened on March 10th. The entrance leads through the heart of a California big tree, just as the road passes through the famous tree "Wawona" in the Mariposa Big Tree Grove. The whole inclosure is a miniature woodland, with trails leading among the trees. Here and there are views of famous scenic features of the Pacific Coast reached by the Southern Pacific.

Through this scenic woodland the trail to the left leads to the Southern Pacific ticket office and information bureau. No effort is spared to make this office a model of usefulness. Here your tickets are validated for return East, or you may purchase tickets for short trips out of San Francisco or across the continent. Pullman sleeping car reservations may be made and tickets bought. The information bureau clerks will gladly help you plan your trips and provide you with carefully prepared itineraries. If you like, have your mail addressed care Southern Pacific Ticket Office, Exposition Grounds, where it will be held until you call or give instructions for forwarding.

Opening out of the ticket office is Sunset Theatre, a replica of the Little Theatre in New York. It seats three hundred and fifty and is equipped with the finest of stereopticon and moving picture projection apparatus. In half-hour talks, profusely illustrated with beautifully colored slides and with choice films, the company's lecturers describe the marvellous scenic features and industrial resources of the States traversed by the line.

Southern Pacific Day at the Fair.—When the project of the Panama-Pacific International Exposition was launched several years ago, the Southern Pacific Company was among the first to offer its moral and financial support. In view of this fact, the officials of the exposition set aside March 10th as the day on which to pay public tribute to the railroad company for its efforts contributing to the success of the fair.

On that day, which was to be known as "Southern Pacific Day," every employe of the largest corporation in the West that could be spared from duty attended the exposition. At the same time, the Southern Pacific building on Palm Avenue was thrown open to the public.

An interesting feature of Southern Pacific Day was the attendance at the exposition of the veteran corps of the railroad—the retired and pensioned employes who helped to make early California and Nevada history by building under the direction of the "Big Four"—Mark Hopkins, Leland Stanford, Charles Crocker and C. P. Huntington—the Central Pacific and the Southern Pacific Railroads.

LAND AND INDUSTRIAL.

Some Results of the Efforts of the Lehigh Valley to Promote South American Trade.—New and interesting results have recently reached the Lehigh Valley Railroad as a result of the special train it operated over its system last September for the purpose of bringing to the attention of manufacturers, promoters and other business men along its line the value and importance of South America as a market for their products. Mr. Peter H. Burnett, the railroad's industrial commissioner, has received several letters from commission men in various sections of the South American countries, urging him to bring their names to the attention of business men along the line of the railroad with a view to their being able to open negotiations looking to business. Every letter shows the realization that South American business methods differ from those of this country. In each case the writer outlines just how he expects to handle the financial feature of every deal. The letters show that the business men have been quick to take advantage of the opportunity offered them through the opening of branches there by American banks. They are also alive to the difference in credit methods.

"The term of draft at sight is unusual in our market but it may perhaps be possible that I could induce some of my customers to accept draft at eight days' sight for the time being," says one writer. "However, when the European war is over we will be obliged to fall in with the prevailing terms of 30 days' sight."

Another interesting side-light in the letters which are coming to Mr. Burnett appears in the references given by the various South American business men seeking to open relations with business men of North America. One of them furnished a list of four references outside of South America, two in England and two in Spain.

Mr. Burnett plans to bring these letters to the direct attention of the manufacturers and farmers along the line of the Lehigh Valley calculated to be interested.

BOOK REVIEWS.

Railroads: Finance and Organization.—By Wm. Z. Ripley, Ph.D., illustrated, 675 pages, net, $3.00; (by mail, $3.20).

This volume is a logical successor of Professor Ripley's well-known book on "Railroad Rates and Regulation," and is a comprehensive treatment of such matters as the nature and kinds of railroad securities, the course of market prices and receiverships and reorganizations. It will undoubtedly prove serviceable to bankers, investors and members of the legal profession being available for academic use. It purports to be more than either a treatise upon private finance or a college text-book. It is "a constructive essay in government," systematizing information for others in a single great department of public affairs. Until within a few years, public regulation was largely concerned with rate-making, which forms the subject matter of the first volume, already issued. State regulation, however, has now spread over into the field of finance. Partly as a result of grave losses to investors through mismanagement and dishonesty; partly, and to an increasing degree within the last decade because of a belated perception of the economic truth that all phases of the great business of transportation and inextricably entangled, legislators, public officials and property owners have been brought face to face with a large number of financial problems. Among these are the regulation of the capitalization and financing of public-service corporations, the determination of reasonable rates and physical valuation. These questions are discussed in a large way, keeping the collective interest in view; but recognizing, nevertheless, that the encouragement of private capital by the prospect of a satisfactory return upon its ventures is essential both for adequate service in the present and for the future development of the greatest single material agency upon which the industrial life of the nation depends. Many diagrams employed in lieu of statistics and a number of maps serve to clarify the text, and to make it interestingly readable.

RESIGNATIONS.

Executive.

D. S. Elliott, president, Great Northern Express Company.

Louis S. Posner, co-receiver, Missouri, Oklahoma and Gulf R. R.

Edwin W. Winter, receiver, Chicago and Eastern Illinois R. R.

Legal.

E. M. Bagley, claims attorney, Oregon Short Line Railroad.

G. E. McGaughan, claims attorney, Rock Island Lines.

W. Scott Hancock, assistant attorney, Missouri Pacific-Iron Mountain System.

Financial.

O. H. Nance, auditor, secretary and treasurer, St. Louis, Brownsville and Mexico Railway.

Clayton Snyder, assistant secretary, National Railways of Mexico.

Accounting.

J. W. Renner, auditor, Cleveland, Akron & Cincinnati, the Waynesburg & Washington, the Wheeling Terminal, and the Pennsylvania Terminal.

William B. Scott, auditor of merchandise traffic, Philadelphia and Reading Railway.

Engineering and Mechanical.

T. Delaney, supervisor, sub-division No. 1, Baltimore and Ohio, Cleveland Division.

C. Millard, engineer maintenance of way, Rock Island Lines.

T. Windle, master mechanic, International & Great Northern Railroad.

Operation.

E. F. Blomeyer, general manager, Tennessee, Alabama & Georgia Railroad.

F. E. Bolte, superintendent of transportation, Wabash Railroad.

W. R. Cahill, superintendent, Omaha and Grand Island Division, Union Pacific Railroad.

A. B. Crook, roadmaster, Missouri Kansas and Texas Railway.

James D. Welsh, general superintendent, Colorado and Southern Railroad.

Traffic.

William Clapper, division freight and passenger agent, Wabash Railroad.

T. L. Harris, live stock agent, Chicago and Alton Railroad.

J. C. Havely, general agent, Missouri, Pacific, St. Louis-Iron Mountain and Southern, Denver and Rio Grande and Western Pacific Railways.

Amos G. Manahan, special agent, Operating Department, New York, Philadelphia & Norfolk Railroad.

F. R. Thomas, city passenger and ticket agent, Chicago Great Western R. R.

W. T. Webster, general freight agent, Chicago, Indianapolis and Louisville Railway.

Miscellaneous.

D. J. Corkery, real estate and tax agent, Chicago and Alton Railroad.

ELECTIONS AND APPOINTMENTS.

Executive.

Verne M. Alexander, assistant to the president, Chicago and Alton Railroad. Headquarters, Chicago, Ill.

Frank G. Drum, receiver, Western Pacific Railway. Headquarters, San Francisco, Cal.

Raymond Du Puy, president, Virginian Railway. Headquarters, Norfolk, Virginia.

D. S. Elliott, vice-president in charge of traffic, American Express Company.

Henry C. Ferris, co-receiver, Missouri, Oklahoma and Gulf Railroad.

R. B. Fowler, vice-president and general manager, Tremont and Gulf Railroad. Headquarters, Winnfield, La.

Vivian Harcourt, acting receiver, Algoma Central and Hudson Bay. Headquarters, Sault Ste. Marie, Ont.

Charles W. Hotchkiss, chairman of the Board and of the Executive Committee, Virginia Railway. Headquarters, New York.

J. S. Joyce, president, Tremont and Gulf Railroad. Headquarters, Chicago, Ill.

Edward F. Kearney, president, Wabash Railroad. Headquarters, St. Louis, Mo.

W. P. Kenny, president, Great Northern Express Company.

E. C. Merritt, president, Transportation Club of Indianapolis.

Alexander New, co-receiver, Missouri, Oklahoma and Gulf Railroad.

Warren Olney, Jr., receiver, Western Pacific Railway. Headquarters, San Francisco, Cal.

T. F. Steele, vice-president and traffic manager, New Orleans and Northeastern, the Alabama and Vicksburg and the Vicksburg, Shreveport and Pacific Railroads. Headquarters, New Orleans, La.

B. A. Worthington, receiver, Cincinnati, Indianapolis & Western Railway.

William A. Worthington, vice-president and assistant to chairman, Southern Pacific Company. Headquarters, New York.

Legal.

Ernest H. Ballard, commerce counsel, Michigan Central Railroad. Headquarters, New York.

W. W. Collins, Jr., commerce counsel, New York Central Lines. Headquarters, Pittsburgh, Penna.

Arthur E. Haid, assistant general attorney, St. Louis & San Francisco Railroad. Headquarters, St. Louis, Mo.

H. H. Larimore, assistant attorney, Missouri Pacific-Iron Mountain System. Headquarters, St. Louis, Mo.

Ralph M. Shaw, assistant general counsel, Chicago Great Western Railroad. Headquarters, Chicago, Ill.

Financial.

G. W. Alexander, treasurer, Detroit Terminal. Headquarters, Detroit, Mich.

Milton S. Barger, treasurer, Rutland Railroad. Headquarters, New York.

E. E. Bashford, secretary, National Railway of Mexico. Headquarters, New York.

M. Eckert, auditor, secretary and treasurer, St. Louis, Brownsville and Mexico. Headquarters, Kingsville, Texas.

Edgar Freeman, assistant treasurer, Rutland Railroad. Headquarters, New York.

John H. Fults, cashier, Panhandle Company.

Alexander P. Gest, secretary of the Association of Transportation Officers, Pennsylvania Railroad. Headquarters, Philadelphia, Pa.

Bertram Lord, financial and foreign manager, Wells, Fargo & Company. Headquarters, New York City.

E. L. Parker, treasurer, Texarkana and Fort Smith Railway. Headquarters, Texarkana, Texas.

H. G. Snelling, assistant treasurer, Rutland Railroad. Headquarters, New York.

Accounting.

Henry Forster, assistant auditor of merchandise traffic, Philadelphia and Reading Railway. Headquarters, Philadelphia, Pa.

Robert R. Hulme, auditor, merchandise traffic, Philadelphia and Reading Railway. Headquarters, Philadelphia, Pa.

J. R. McCoy, auditor in charge of accounts, Denver, Laramie and Northwestern Ry.

J. W. Orr, auditor, Cleveland, Akron & Cincinnati, the Waynesburg & Washington, the Wheeling Terminal, and the Pennsylvania Terminal.

W. H. Sparger, auditor, Oil Belt Railway. Headquarters, Jennings, Mo.

Engineering and Mechanical.

William C. Armstrong, chief engineer, St. Paul Union Depot Company. Headquarters, St. Paul, Minn.

S. T. Armstrong, master mechanic, International and Great Northern Railway. Headquarters, Palestine, Texas.

A. R. Ayres, principal assistant engineer, New York Central Railroad. Headquarters, New York.

Hadley Baldwin, assistant chief engineer, Cleveland, Cincinnati, Chicago & St. Louis and the Peoria & Eastern Railways. Headquarters, Cincinnati, Ohio.

D. E. Barton, acting master mechanic, Atchison, Topeka and Santa Fe Railway. Headquarters, Argentine, Kansas.

A. Berg, general foreman, car department, New York Central R. R. Headquarters, Wesleyville, Penna.

W. H. Berry, consulting engineer, Grand Trunk Railway. Headquarters, Providence, R. I.

E. Bloom, shop demonstrator and chief apprentice instructor, Chicago and North Western Railway. Headquarters, Chicago, Ill.

W. McC. Bond, supervisor of Sub-division No. 1, Baltimore and Ohio Railroad, Cleveland Division. Headquarters, Akron, Ohio.

R. M. Brown, assistant engineer, New York Central Lines. Headquarters, Cleveland, Ohio.

E. J. Bryant, master mechanic, International and Great Northern Railway. Headquarters, Mart, Texas.

H. M. Church, division engineer, Baltimore Division, Baltimore and Ohio Railroad. Headquarters, Baltimore, Md.

W. L. Connors, signal supervisor, Rochester Division, Buffalo, Rochester and Pittsburgh. Headquarters, Warsaw, N. Y.

James G. Donovan, division engineer, Lehigh Valley Railroad Company. Headquarters, Hazleton, Pa.

J. T. Flavin, master mechanic, Illinois Division. New York Central Railroad. Headquarters, Gibson, Ind.

F. S. Gallagher, assistant engineer, New York Central. Headquarters, New York.

W. B. Geiser, assistant chemist and engineer of tests, Lake Shore and Michigan Southern Railway. Headquarters, West Albany, New York.

George S. Graham, master mechanic, Pennsylvania Division, Delaware and Hudson Company. Headquarters, Carbondale, Pa.

W. G. Hall, general foreman, International and Great Northern Railway. Headquarters, Palestine, Texas.

H. D. Harlow, master carpenter, Erie Railroad. Headquarters, Huntington, Ind.

W. H. Keller, assistant master mechanic, Cincinnati terminals, Baltimore and Ohio Southwestern Railroad. Headquarters, Cincinnati, Ohio.

C. Kyle, master mechanic, Atlantic Division, Canadian Pacific Railway. Headquarters, St. John, N. B.

V. J. Lamb, general foreman car repairs, Charleston and Western Carolina Ry. Headquarters, Augusta, Ga.

L. F. Lonnbladh, chief engineer, Missouri, Kansas and Texas Lines. Headquarters, St. Louis, Mo.

C. Lundberg, general foreman, Chicago, Milwaukee and St. Paul Railway. Headquarters, Chicago, Ill.

A. E. McMillan, master mechanic, Indiana and Illinois Divisions, Baltimore and Ohio Southwestern Railroad. Headquarters, Washington, Ind.

A. A. Mathews, engineer maintenance of way, Missouri, Kansas and Texas Railway. Headquarters, St. Louis, Mo.

P. P. Mirtz, assistant engineer, New York Central Railroad. Headquarters, New York.

D. M. Neer, roadmaster, Missouri, Kansas and Texas Railway. Headquarters, Smithville, Texas.

C. M. Newman, superintendent of shops, Baltimore and Ohio Southwestern Railroad. Headquarters, Washington, Ind.

J. Orcutt, master carpenter, Erie Railroad. Headquarters, Marion, Ohio.

Charles A. Paquette, chief engineer, Cleveland, Cincinnati, Chicago & St. Louis and the Peoria and Eastern. Headquarters, Cincinnati, Ohio.

William Pelham, inspector of bridges and buildings, Erie Railroad. Headquarters, Cleveland, Ohio.

John J. Reid, master mechanic, Susquehanna Division, Delaware and Hudson Co. Headquarters, Oneonta, N. Y.

P. Roquemore, mechanical engineer, International and Great Northern Railway. Headquarters, Palestine, Texas.

H. Selfridge, master mechanic, Nevada Northern Railway. Headquarters, East Ely, Nev.

George P. Smith, consulting engineer, Cleveland, Cincinnati, Chicago and St. Louis Railway and the Peoria and Eastern. Headquarters, Cincinnati, Ohio.

H. E. Smith, chemist and engineer of tests, Lake Shore and Michigan Southern Railway. Headquarters, Collinwood, Ohio.

W. F. Weigman, general foreman, car department, First Division, Seaboard Air Line. Headquarters, Portsmouth, Va.

G. Whiteley, assistant superintendent of motive power, Eastern Lines, Canadian Pacific Railway. Headquarters, Montreal, Que.

Alex. Young, district master mechanic, Chicago, Milwaukee and St. Paul Railway. Headquarters, Milwaukee, Wis.

Operation.

G. W. Adams, chief despatcher, Southern Railway. Headquarters, Atlanta, Ga.

L. B. Allen, assistant general manager, Lines East of Missouri, Chicago, Burlington and Quincy Railroad. Headquarters, Chicago, Ill.

R. C. Andrews, assistant general superintendent, Texas and Pacific Railway. Headquarters, Dallas, Texas.

W. M. Ansley, acting superintendent, Second District, Canadian Pacific, Alberta Division. Headquarters, Lethbridge, Alta.

C. G. Arthur, superintendent, Southern Railway. Headquarters, Richmond, Va.

L. C. Ayers, assistant superintendent, Pocahontas Division, Norfolk and Western Railway. Headquarters, Bluefield, W. Va.

H. F. Bickell, inspector of transportation, Texas and Pacific Railway. Headquarters, Dallas, Texas.

J. F. Briant, assistant superintendent, Richmond Division, Chesapeake and Ohio Railroad. Headquarters, Richmond, Va.

G. O. Brophy, superintendent, Union Pacific Railroad. Headquarters, Cheyenne, Wyo.

F. M. Bulloch, night chief despatcher, Southern Railway. Headquarters, Atlanta, Ga.

B. C. Byers, superintendent, St. Louis Division, Cleveland, Cincinnati, Chicago and St. Louis. Headquarters, Mattoon, Ill.

O. K. Cameron, superintendent, Mobile Division, Southern Railway. Headquarters, Salem, Ala.

F. S. Collins, superintendent, Asheville Division, Southern Railway.

C. E. Crosby, superintendent, Carolina & North Western Railway. Headquarters, Chester, S. C.

W. R. Dawson, assistant to the general manager, Norfolk and Western Railway. Headquarters, Roanoke, Va.

T. B. Degnan, division superintendent, Great Northern Railroad. Headquarters, Crookston, Minn.

W. G. Dungan, superintendent, Sterling Division, Chicago, Burlington and Quincy Railroad. Headquarters, Sterling, Colo.

H. Eicke, superintendent of transportation, Wabash Railroad. Headquarters, St. Louis, Mo.

J. H. Elliott, superintendent, New Orleans Division, Texas and Pacific Railway. Headquarters, New Orleans, La.

T. W. Fatherson, engineer maintenance of way, Chicago Great Western Railroad. Headquarters, Des Moines, Ia.

J. W. Fletcher, engineer, Carolina & North Western Railway. Headquarters, Chester, S. C.

E. Flynn, superintendent, LaCrosse Division, Chicago, Burlington and Quincy Railroad. Headquarters, La Crosse, Wis.

E. I. Ford, superintendent, Newport News and Norfolk terminals, Chesapeake and Ohio Railroad. Headquarters, Newport News, Va.

B. B. Greer, assistant general manager, Lines West, Chicago, Burlington and Quincy Railroad. Headquarters, Omaha, Neb.

G. L. Griggs, superintendent, Sheridan Division, Chicago, Burlington and Quincy Railroad. Headquarters, Sheridan, Wyo.

B. Haggard, trainmaster, east end, Birmingham Division, Southern Railway. Headquarters, Birmingham, Ala.

E. E. Hanna, trainmaster, St. Louis Southwestern Railway. Headquarters, Waco, Texas.

F. E. Hatch, trainmaster, Illinois Central Railroad. Headquarters, Carbondale, Ill.

Arthur Hatton, general superintendent of car service, Canadian Pacific Railway. Headquarters, Montreal, Que.

Charles Hicks, general manager, Tennessee, Alabama and Georgia Railroad. Headquarters, Chattanooga, Tenn.

C. C. Hodges, superintendent, Transylvania Division, Southern Railway. Headquarters, Brevard, N. C.

J. M. Hudspeth, superintendent of terminals, Southern Railway. Headquarters, Richmond, Va.

W. B. Jeffers, superintendent, Nebraska Division, Union Pacific Company. Headquarters, Omaha, Neb.

A. P. Johnson, trainmaster, South End, Atlanta Division, Southern Railway. Headquarters, Macon, Ga.

F. D. Kelsey, division superintendent, Great Northern Railroad. Headquarters, Spokane, Wash.

C. P. King, superintendent, Charleston Division, Southern Railway. Headquarters, Charleston, W. Va.

J. W. Knapp, superintendent, Richmond Division, Chesapeake and Ohio Railroad. Headquarters, Richmond, Va.

E. S. Koller, general superintendent, Colorado & Southern Railway. Headquarters, Denver, Colo.

B. F. Langford, trainmaster, North End, Atlanta Division, Southern Railway. Headquarters, Atlanta, Ga.

C. E. Leverich, assistant general superintendent, Great Northern Railroad. Headquarters, Great Falls, Mont.

William Lynch, superintendent, Eastern Division, Texas and Pacific Railway. Headquarters, Marshall, Texas.

J. L. McLendon, terminal trainmaster, Southern Railway. Headquarters, Macon, Ga.

John T. McShane, trainmaster, Chicago, Burlington and Quincy Railway. Headquarters, McCook, Neb.

A. M. Marion, assistant to general superintendent of freight transportation, Pennsylvania Lines West of Pittsburgh. Headquarters, Pittsburgh, Penna.

E. H. Morey, foreman, new erecting and machine shop, Chicago & North Western Railway. Headquarters, Chicago, Ill.

C. M. Newman, superintendent of shops, Baltimore and Ohio Southwestern Railroad. Headquarters, Washington, Ind.

C. D. Peckenpaugh, superintendent, McCook Division, Chicago, Burlington and Quincy Railroad. Headquarters, McCook, Neb.

Walter Pratt, Jr., general superintendent, Canadian Northern Railway. Headquarters, Winnipeg, Man.

S. M. Rankin, assistant to general superintendent of passenger transportation, Pennsylvania Lines West of Pittsburgh. Headquarters, Pittsburgh, Pa.

H. T. Reinicker, assistant superintendent, Scioto Division, Norfolk and Western Railway. Headquarters, Portsmouth, Ohio.

F. N. Reynolds, superintendent, Indianapolis Terminal Division, Cleveland, Cincinnati, Chicago & St. Louis. Headquarters, Indianapolis, Ind.

J. W. Roberts, general superintendent of passenger transportation, Pennsylvania Lines West of Pittsburgh. Headquarters, Pittsburgh, Pa.

R. W. Stevens, general superintendent, Chicago and Western Indiana Railway. Headquarters, Chicago, Ill.

G. S. Stewart, assistant general superintendent, Great Northern Railway. Headquarters, Spokane, Wash.

W. T. Sutphen, trainmaster, Richmond Division, Southern Railway. Headquarters, Richmond, Va.

W. F. Thiehoff, general superintendent, Nebraska Division, Chicago, Burlington and Quincy Railroad. Headquarters, Lincoln, Neb.

R. S. Toucey, trainmaster, Union Pacific Company. Headquarters, Ogden, Utah.

J. W. Trueb, superintendent of car service, Vandalia Railroad. Headquarters, Terre Haute, Ind.

A. N. Umshler, trainmaster, Illinois Central. Headquarters, Centralia, Ill.

Joseph B. Walsh, trainmaster, Missouri, Kansas and Texas Railway. Headquarters, Oklahoma City, Okla.

Joseph Webber, superintendent of terminals, Great Northern Railway. Headquarters, Seattle, Wash.

James D. Welsh, general superintendent, Colorado and Southern Ry. Headquarters, Omaha, Neb.

G. Whiteley, assistant superintendent of motive power, Eastern Lines, Canadian Pacific Railway. Headquarters, Montreal, Que.

Alfred A. Woods, superintendent, New Orleans and Northeastern Railway. Headquarters, New Orleans, La.

Traffic.

F. W. Birchett, Jr., general agent, Traffic Department, Chicago and Alton Railroad. Headquarters, New Orleans, La.

Elbert Blair, southwestern freight agent, Chicago and Alton Railroad. Headquarters, Dallas, Texas.

Walter Bockstahler, westbound agent, Wabash Railroad. Headquarters, Chicago, Ill.

E. E. Bush, traffic manager, American Express Company.

J. B. Collins, district claim agent, Missouri Pacific-Iron Mountain System. Headquarters, Poplar Bluff, Mo.

C. L. Davis, joint agent, Lehigh Valley Railroad. Headquarters, Sterling, N. Y.

W. C. Dibble, general agent, Missouri Pacific, St. Louis, Iron Mountain & Southern, Denver & Rio Grande and Western Pacific Railways. Headquarters, Sacramento, Cal.

H. C. Dinkins, foreign freight agent, International & Great Western Railroad. Headquarters, Houston, Texas.

A. Drahos, western agent, Norfolk and Western Railway. Headquarters, Denver, Colo.

J. V. Dunne, traveling freight agent, Louisville and Nashville Railroad. Headquarters, Montgomery, Ala.

Charles A. Forrest, general agent, St. Louis & San Francisco Railroad. Headquarters, Atlanta, Ga.

J. J. Glasford, agent, Lehigh Valley Railroad. Headquarters, Richford, N. Y.

K. B. Hannigan, assistant general freight agent, Southern Railway. Headquarters, St. Louis, Mo.

J. L. Harris, live stock agent, Wabash Railroad.

George B. Ingersoll, local freight agent, Wabash Railroad. Headquarters, Chicago, Ill.

C. D. Jeffers, district claim agent, Missouri Pacific-Iron Mountain System. Headquarters, Kansas City, Mo.

J. E. Johanson, general freight agent, Rock Island Lines. Headquarters, Little Rock, Ark.

C. C. Johnson, city passenger and ticket agent, Chicago Great Western Railroad. Headquarters, Minneapolis, Minn.

H. N. Kennedy, general freight agent, Great Northern Steamship Co. Headquarters, San Francisco, Cal.

C. F. Laure, commercial agent, Southern Railway. Headquarters, St. Louis, Mo.

E. M. Linzee, passenger agent, Chicago and Alton Railroad. Headquarters, St. Louis, Mo.

A. A. McKowen, division freight and passenger agent, Wabash Railroad. Headquarters, Des Moines, Iowa.

D. L. Ogg, commercial agent, Cincinnati, Hamilton and Dayton. Headquarters, Ironton, Ohio.

Floy Polley, agent, Lehigh Valley Railroad. Headquarters, Tioga Centre, New York.

Barth Reidy, general agent, traffic department, Chicago and Alton Railroad. Headquarters, Little Rock, Ark.

R. B. Robertson, assistant general freight agent, Chicago, Indianapolis and Louisville. Headquarters, Chicago, Ill.

W. F. Sterley, general freight and passenger agent, Fort Worth & Denver City and the Wichita Valley Railroads. Headquarters, Fort Worth, Texas.

R. W. Stevens, general superintendent, Chicago & Western Indiana Railroad. Headquarters, Chicago, Ill.

E. S. Stowell, traveling freight agent, Wabash Railroad. Headquarters, Buffalo, New York.

A. C. Tumy, general freight agent, Chicago, Indianapolis and Louisville Railroad. Headquarters, Chicago, Ill.

E. A. Weiberg, milk traffic agent, Chicago & Alton Railroad. Headquarters, Chicago, Ill.

M. B. Wilburn, commercial agent, Gulf, Colorado & Santa Fe Railway. Headquarters, Houston, Texas.

H. D. Wilson, general agent, passenger department, Missouri Pacific and the St. Louis, Iron Mountain and Southern Railways. Headquarters, Memphis, Tenn.

E. H. Yarkey, district passenger agent, Chicago and Alton Railroad. Headquarters, Peoria, Ill.

Industrial.

Oscar G. Getzen-Danner, general land and tax agent, New York Central Railroad. Headquarters, New York.

Herbert D. Howe, general land and tax agent, New York Central Railroad. Headquarters, Chicago, Ill.

Leon C. James, land and tax agent, New York Central Railroad. Headquarters, Cleveland, O.

Joseph Moses, assistant general land and tax agent, New York Central Railroad. Headquarters, Cincinnati, Ohio.

Edwin E. Pettibone, assistant general land and tax agent, New York Central Railroad. Headquarters, Cleveland, Ohio.

Miscellaneous.

D. J. Corkery, tax department, Chicago, Burlington and Quincy Railroad. Headquarters, Chicago, Ill.

The "Full Crew" Repeal.

(From the "American Industries" for March.)

THE example set by the people of Missouri in repealing the full crew law for railroads is likely to be followed by other states which have inadvisedly passed similar laws. Here is an opportunity for the exponents of the extension of popular government to prove that when the people have made a mistake the error can be readily rectified. Of course, the repeal of the pernicious statutes will not undo the harm already done, but it acts as a deterrent to the passage of similar legislation at the behest of the privileged classes of labor.

In New York State a bill has already been introduced in the legislature to repeal the "extra crew law" which was jammed through the legislature during the administration of the impeached Governor Sulzer. At the time of its passage the railroads entered vigorous protests against it as a law which added greatly to the financial burden of operation without conferring a single benefit to the traveling public. The law was fathered by the advocates of levitation by bootstraps who believed that labor can be permanently benefited by the enactment of laws making mandatory the employment of men for useless jobs.

Steam Locomotives of To-Day

Note: The following is the report of the Sub-Committee on Railroads of the American Society of Mechanical Engineers which was presented at the annual meeting of this organization held in New York on December second. The report deals with the modern steam locomotive under the following heads: "Progress in Capacity," "Progress in Efficiency," and "What Remains to be Done."

RECENT progress and improvement in the efficiency and capacity of steam locomotives has been of such remarkable character and extent that a record in the proceedings of this Society is justified.

2. Steam and electric locomotives as rivals in the same field has been a favorite subject for discussion before engineering societies and it is easy to start arguments in favor of each of these rivals among the partisans interested. Whether or not the steam locomotive is to be displaced by the electric is, of course, an important question which will in time be settled by the court that settles all such questions, that of the treasurer's figures. For the present and for the immediate future the burden of transportation falls and will continue to fall upon the steam locomotive. If the steam locomotive is to be perpetuated it is fitting that it should be improved to the utmost limit. If it is to be finally displaced it is fitting that it shall be so improved in order that progress to something better shall be intelligently developed upon a solid foundation. This discussion will be confined to the steam locomotive, its progress in the recent past and its possibilities for the near future.

PROGRESS IN CAPACITY.

3. While the efforts individual in character and extent were made in this country before that time, the first consistent and systematic plan to secure the utmost power of locomotives within given restrictions of weight and cross-section clearance was inaugurated twenty years ago. This plan began with an eight-wheel or American type passenger locomotive, built for an Eastern railroad in January, 1895. This locomotive weighed 116,000 pounds, with 74,500 pounds on driving wheels. It provided a tractive effort of 21,290 pounds. While this locomotive was not the most powerful in passenger service at that time, it was the first of a chain of passenger locomotives leading in a connected series, by the same builders, up to and including recent designs of the Mountain type, representing the largest passenger type of present practice. This type has four-wheel leading trucks, eight driving wheels and two trailing wheels. The largest of the Mountain type weighs 331,500 pounds with 240,000 pounds on driving wheels and produces a tractive effort of 58,000 pounds, or about three times the tractive effort of the first design of the series built during a period of twenty years.

4. In the year 1898 the engineering and railroad world was interested by the appearance of the largest and most powerful locomotive built up to and for a number of years was the largest and most powerful of its type, and the largest and most powerful locomotive in the world. Its total weight is 330,000 pounds, weight on drivers 208,000 pounds, and tractive effort 53,300 pounds.

5. To-day the most powerful freight locomotive has two leading and two trailing wheels and 24 driving wheels. It gives a tractive effort of 160,000 pounds and weighs 410 tons. This locomotive has hauled a train of 251 freight cars weighing 17,912 tons, exclusive of the locomotive. The total length of the train was 1.6 miles, the maximum speed attained was 14 miles per hour. This required a maximum drawbar pull of 130,000 pounds. This locomotive has six cylinders and three groups of driving wheels.

6. A freight locomotive has recently been built having two cylinders and a single group of driving wheels which develops a tractive effort of 84,500 pounds. Such has been the progress in ca- that time. This was of the Consolidation type with a two-wheel leading truck and eight driving wheels. This locomotive was built in Pittsburgh pacity.

7. This progress has been rapid, perhaps somewhat too rapid with respect to improvements in operating facilities and progress in other features of railroad equipment. It has been rendered possible by corresponding developments of factors making for greater efficiency in boilers and in engines. During the past twenty years in this country locomotive development in capacity and in efficiency, particularly during the past five years with respect to efficiency, has been remarkable and is worthy of record with progress in marine and stationary engineering.

8. In Europe the relatively high cost of fuel led to efforts to improve efficiency before this problem aroused serious attention in this country, but physical limitations more rigidly restricted the size and weight of locomotives in Europe. Our problem is to secure maximum efficiency combined with great size, great weight and great power which is more difficult. Since the development in the size and weight has been tremendous, even though these limits may not yet have been reached, it is now appropriate to concentrate on efficiency.

9. For a number of years the physical capacity of the fireman to shovel horsepower through the fire door determined the capacity of the locomotive at speeds. Mechanical stokers have removed that limitation. It is now possible to fire six tons, and more, of coal per hour into a locomotive firebox. This has changed the problem into one of getting the maximum amount of heat out of the coal and using it economically in the cylinders. With the large figures now prevailing for drawbar pull and weight it is fitting that closest attention should be given to the best possible use of every pound of metal and every pound of coal. Due to recent application of several economy producing and capacity increasing factors great improvements have already been made with promise of more to come. Then the great work of building up the efficiency of the average locomotive to the standard of the best will follow.

10. Among these economy producing and capacity increasing factors are the following improvements:

Boiler design in relationship of the factors making up heating surface.

Firebox design.

Front and design, draft appliances, exhaust nozzles.

Ashpan design as to air openings.

Superheating.

Compounding.

Feedwater heating.

Firebrick arches and circulating supporting tubes.

Valve gear.

Detail design to secure reduced weight of reciprocating parts and other parts.

Use of high-grade alloy steels to reduce weights.

Mechanical stokers.

Labor-saving devices for the engineman and fireman.

Improved counterbalancing to permit of greater weight on driving wheels by reducing dynamic stresses.

And yet to come is powdered fuel with possibilities unknown in scope and in importance. Powdered fuel is in reserve, promising the ideal method of complete combustion under control more perfect than is possible with present methods other than oil burning and perhaps with economies impossible to obtain with oil.

PROGRESS OF EFFICIENCY.

11. Valuable comparisons may be drawn from the best results of ten years ago and of to-day. At the Louisiana Purchase Exposition in 1904 the tests made by the Pennsylvania Railroad revealed important figures concerning locomotive performance at that time. It was shown to be possible to obtain equivalent evaporation from and at 212 degrees of 16.4 pounds of water per square foot of heating surface, indicating the power of locomotive boilers when forced. It was shown that when the power was low, the evaporation per pound of coal was between 10 and 12 pounds, whereas the evaporation declined to approximately two thirds of these values when the boiler was forced. These results compared favorably with those obtained in good stationary practice, whereas the rate of evaporation in stationary practice lies usually from 4 to 7 pounds of water per foot of heating surface per hour. In steam consumption the St. Louis tests showed a minimum of 16.6 pounds of steam per i.h.p. per hour. In coal economy the lowest figure was 2.01 pounds of coal per i.h.p., the minimum figure for coal per dynamometer hp. was 2.14 pounds. These records were made after the superheater had become a factor in locomotive practice and they represent economies attained by aid of the superheater in one of its early applications. This is important in the light of the recent development of the superheater. These remarkable figures have never received the attention which they deserve from engineers. They serve, however, to show that ten years ago a steam locomotive had attained results which were worthy of the best attention of the engineers of the time. Since then greater progress has been made and to-day locomotives of larger capacity than those concerned in the St. Louis tests have given better results.

12. Voluminous records of recent investigations of locomotive performance taken from the Pennsylvania Railroad test plant at Altoona show that the best record of dry fuel per hour i.h.p-hr. down to the present date is 1.8 pounds with a large number of less than 2 pounds, while the best performance in dry steam per i.h.p-hr. is 14.6 pounds with a large number less than 16 pounds. A reduction of 10 per cent in fuel and 12 per cent in water is remarkable as a result of a development of ten years. This coal performance was recorded by a Class E 6 S Pennsylvania Railroad locomotive while running at 320 r.p.m. and developing 1245.1 i.h.p. The same locomotive gave a fuel rate of 1.9 pounds while running at the same speed and developing 1750.9 i.h.p. The best water rate was given by Class K 2 S A Pennsylvania Railroad locomotive wihle running at 320 r.p.m. and developing 2033.1 i.h.p. These high powers indicate that the locomotives were not coddled as to output of power in order to show high efficiencies, but that high efficiencies accompany actual conditions of operation in severe service. As to power capacity expressed in terms of evaporation, it is interesting to note that the maximum equivalent evaporation from and at 212 degrees per square foot of heating surface per hour on the Altoona test plant is 23.3 pounds. These figures of high efficiency were obtained from locomotives which represented not only very careful, general and detail design, but their design included several of the improvements making for greater capacity and higher efficiency, without which the results could not have been attained.

14. Having in mind the facts that steam locomotives are power plants on wheels, built to meet rigid limitations of weight, both static and dynamic, and that the use of condensers is impossible, engineers in general must admit the high character of the work of locomotive designers which has attained these results.

15. Greater efficiency which is revealed on the test plant and through reports of engineers would be important because it proves that progress is being made in the possibilities of locomotive performance. Improvement which is revealed by operating statistics and which, therefore, appears in the records of the treasurer's office is the real test in this case. It is important to know that increased power of locomotives attained largely through the development of economy producing and capacity increasing factors has produced results which the financial reports of railroads prove beyond question. A recently published list of train tonnage on 45 prominent railroads indicates that 16 of these roads have increased their average freight train loads by over 30 per cent during the last five years. Credit must be given to the improvement in the locomotive for most of this development. These figures reveal the value of increased power and efficiency of steam locomotives and the end is not yet in sight.

WHAT REMAINS TO BE DONE.

16. American locomotive development to its present state would have been impossible without the use of the improvements already mentioned. It is believed that all these are capable of still further development, making for still greater economy in the use of fuel and, therefore, promising greater power capacity. It is the object of your committee to present these possibilities for discussion by those who are engaged in perfecting and improving steam locomotive practice in this country. It is the hope of your committee that engineers who are devoting their attention to the design of locomotives as a whole and those who are engaged in the development of the various details which have contributed to the high efficiency of the steam locomotive of to-day will discuss the progress of the recent past and reveal possibili-

ties for future development and improvement in capacity and efficiency.

Inexpensive Excavation by Cleveland Railway Company.

IN these days of increasing prices and scarcity of capital every operating company is on the lookout for ways and means in which to effect the most economical and labor-saving operations.

The tests made on some excavation work done by the Cleveland Railways Company, this summer, indicate that this company is reaping the benefit of such economies.

In building its 79th Street line, the Railway Company had to do a considerable amount of excavation for which it employed the electrically driven Thew automatic shovel illustrated herewith.

This shovel is of the horizontal crowding motion type and has several other features of interest. It weighs thirteen tons, has a dipper with a capacity of ⅝ cubic yard and a clearance height over the house of twelve feet two inches. It is mounted on regular car wheels on which it travels on the car tracks and in addition, is equipped with a set of auxiliary traction wheels, 33 inches in diameter and 15 inches tread, which permits it to run under its own power over the ground, pavement, or wherever it is desired to take it.

The horizontal dipper crowding motion utilized, is said to be particularly adapted to the application of electric drive because of the ease of control and power demands. In excavating material with a shovel, it is necessary first to crowd the dipper forward into the material, then to hoist it upward through the material. In this case, the first motion is made horizontally, being obtained as follows:

The dipper is suspended by an adjustable arm, hinged to a carriage or trolley moving horizontally along a suitable trackway. This enables the shifting of the point of rotation for dipper, so that the hoisting force is at all times exerted in the most effective manner, while the crowding force is applied horizontally. The combination of the horizontal trackway and the boom channels results in a structure braced and reinforced to withstand the severe strains which the boom is called upon to endure.

The trolley motion is controlled by a lever. This lever is further connected to a trip rod which is operated automatically when the trolley reaches the limit of its motion in either direction.

The crowding motion enables this type of shovel to be advantageously employed for very shallow excavating operations.

The entire motive power for traction, hoisting and swinging consists of one 20-horse-power Westinghouse compound-wound 550-volt direct-current motor with a starting and reversing control equipment. The motor operates at approximately constant speed, the various motions being controlled through suitable friction and gears.

The current is usually admitted to the shovel through a flexible insulated cable connected to a switch on the truck frame and transmitted through copper rings to brushes suspended from the swinging turntable.

The use of one motor appears to be a particularly desirable feature, for reducing the initial cost, and affording greater flexibility of action in the frequent reversals of the various operating motions; it also means the operation of three levers instead of three separate controllers, and a gain in time over starting and stopping three separate motors. It is distinctly a one-man machine.

The boom is of the Jack-knife type with an adjustable section that can easily be lowered, allowing the shovel to pass under the trolley wire, without interfering in any way with the efficiency of its operation. The shovel swings through a complete circle delivering the excavated material at any desired point.

A buffer is furnished which takes up the shock that occurs when the shovel strikes a hard piece of excavation. This allows the shovel to be released and relieves the whole machine from the strain to which it would otherwise be subjected.

The cab is cut away so as to allow plenty of room for passing cars, a feature of particular importance when used on street railway work.

Some Maximums and Minimums in Train Operation

NOTE: The following paragraphs are taken from an address delivered by Mr. Albert Price, assistant general manager of the Canadian Pacific Railway, at the December meeting of the Canadian Railway Club. In introducing his subject, Mr. Price called attention to the fact that during the past ten years almost every item used in railway construction, operation and maintenance, has increased in price, but, unlike other commercial institutions who would secure additional revenue to off-set such tremendously heavy increases by increasing the price of their products, the railways have been forced through conditions over which they have had no control, to sell their single product, namely, transportation, at a constantly decreasing price.

THE largest single operating item is the fuel bill. It amounted to $28,000,000 last year on the Canadian railways. For every locomotive mile run there was consumed 113 pounds of coal for which was paid 17¼ cents. It is conceded that in order to secure the maximum tonnage with the minimum consumption everybody having to do with the running of trains must cooperate. The fireman alone might save a considerable sum of money. He now puts eleven scoopsful of coal into the firebox per mile run. If he could manage to get it down to ten, the net earnings of the railways would increase by $2,500,000. The question is, "Would he do it if it was his own coal?" But it must not be left to the fireman alone. Coal can be saved by the engineer, the locomotive foreman and his staff, the yardmaster and his staff, train dispatchers, operators, tram-men, and, in fact, by everyone from the superintendent to the call-boy.

It does not pay to run trains at high speeds, for aside from the greater liability to accident, and the relatively greater amount of damage and loss wh an accident occurs, the service is expensive. Because of keen competition in certain territories, it would appear to be necessary to schedule some fast passenger trains, but when and where possible the actual running speed should not exceed from 45 to 50 miles per hour.

Last year the average number of passengers per train on Canadian railways was only 62, and the average number of cars was 5.6. The minimum tonnage per passenger train mile should be handled: on the other hand and for obvious reasons in freight service, the maximum tonnage per train mile should be handled, and all way freights should be scheduled slow enough to enable the engines to pull their full tonnage under normal weather conditions. It is significant that the Interstate Commerce Commission has advised the American railways to lengthen the time of their fast freight train schedules in order to enable them to lessen their operating expenses.

There is an economical load for a locomotive. What that load is can be determined only by experience and by a series of tests. The maximum tonnage may not be an economical load, especially on what is known as a low grade line. An engine given the maximum tonnage which it is capable of hauling on a line with grades of four-tenths of one per cent, or less, would run into overtime, the fuel consumption would be excessive and it would probably be found that the last straw, speaking metaphorically, had broken the back of the locomotive camel. On the other hand, to underload locomotives in through freight service in both directions is an inexcusable waste.

When, by tests made with a dynamometer car, it has been determined what tonnage a locomotive of a certain tractive power is capable of hauling economically over the maximum grades on a subdivision, operating officials should insist upon engines being so loaded, at least in one direction, and under normal weather conditions. Low temperature, a heavy fall of snow, a greasy rail, or any atmospheric condition that will retard the movement of a train will warrant running with a reduced tonnage, so as to permit reasonably good time being made from the initial to the objective terminal. It does not pay to haul maximum tonnage at the expense of excessive fuel consumption and overtime.

Theoretically, engines should be given their full tonnage rating in both directions, but in uractice it is found that this cannot be done, as usually there is a preponderance of traffic one way, and locomotives must run in the opposite direction with reduced tonnage in order to keep the freight moving. However, under the circumstances, if engines haul the maximum load in one direction, the results should be satisfactory.

It might be well to demonstrate the effect of running trains with greatly reduced tonnage. The following statement makes a comparison of actual results on a certain subdivision, the periods "A" and "B" representing two summer months. During "B" the gross tonnage handled one mile was 87,008,449, and items indicated by "x in "A" are based on this ton mileage:

Item	Period "A"	Period "B"
Average weight of train per mile	1,737 tons	2,133 tons
Train miles	50,136 x	40,876
Pounds coal used per train mile	129	128
Pounds coal per thousand tons hauled one mile	75	61
Cost	$22,893.55 x	$18,637.98
Saving		$ 4,255.57

The saving on this 125 mile subdivision was not due to any change in the physical characteristics of the road nor to the use of more powerful locomotive, but merely to a better loading of trains and during the month the saving amounted to $4,255.57.

It will be observed that, although the average weight of train per mile during Period "B" was 396 tons more than during "A," the amount of coal consumed per train mile was approximately the same. This will not always follow, but the statement demonstrates clearly that if an engine is not overloaded, it will burn almost as much coal per mile when hauling 75 per cent or 80 per cent of its full tonnage as when it is loaded to its capacity. The same is true of wages and other engine and train supplies.

It is surprising the effect upon almost every operating item a small increase in the average load per loaded car would have.

During the year 1913 the average weight of contents in loaded cars on all the Canadian railways was 19 tons—a very small load when it is considered that the average carrying capacity was 32.14 tons. An increase in the average contents would result in a decrease in the number of cars required to carry the same volume of traffic, and fewer cars would lessen the cost of locomotives, train, yard and round house service, as well as some other incidental expenses.

There is now a campaign on to increase the average weight of contents of loaded cars on the Eastern Lines of the Canadian Pacific Railway in 1915, the increase aimed at being three tons per car. Based upon the traffic handled in 1913, when the average weight of the contents of loaded cars was 20.15 tons, it is estimated that the increased average load would represent a saving in three items alone of not less a sum than $800.000, as follows:

In locomotive and round house expenses	$99,608.50
In car repairs	282,367.65
In ton mileage	427,502.60
Total	$809,478.75

The question might well be asked: Is it possible to secure the additional tonnage? It cannot be done without the hearty and intelligent co-operation of the officers of the railway company and its employes, with the shippers and consignees: but there are many ways in which to increase the average load: only a few need, however, be mentioned:

(a) Select cars o flarge capacity for heavy freight.

EXAMPLE.

For 100,000 bushels of wheat, if 80,000-pound capacity cars were used, the cars would be loaded up to 88,000 pounds, and the whole shipment would be carried in 68 cars. To make the shipment in

60,000-pound capacity cars the cars would carry only 66,000 pounds each and 91 cars would be used. In the former case the average weight of contents would be 44 tons, and in the latter only 33 tons. By using large cars the figures would be:

Contents	3,000 tons
Tare	1,274 tons
Total	4,274 tons

By using small cars:

Contents	3,000 tons
Tare	1,558 tons
Total	4,588 tons

Therefore, under the second proposition, in addition to supplying grain doors, switching, inspecting and hauling 23 extra cars, the engines would have to haul 284 additional tons of dead weight from the point of shipment to destination and back again.

(b) Select smaller capacity cars for light and bulky freight.

As the smaller capacity cars are approximately the same dimensions as the larger and weigh two tons less, they are just as suitable for hay, furniture, oats, etc., and for such commodities it is profitable to use them.

(c) Consignees who need but one car of freight at a time usually order the minimum carload, as per the Freight Classification. If the matter were properly represented to them, they might be induced to order in larger units.

(d) When a shipper holds an order for several carloads of freight for the same consignee and destination, it should not be a difficult matter to persuade him to load the full order in the minimum number of cars.

(e) Shippers and consignees who have suffered through car shortages in the past can be shown that the simplest way to prevent a ceurrence of such a condition is by loading all cars to their full capacity. Not only will this plan avoid car shortages for a number of years to come, but it will prevent the congesting of terminals, which has also been the cause of a great deal of trouble to shippers and consignees in past years.

Another way to secure the maximum freight tonnage to the minimum tare and in the minimum number of cars is by avoiding the unnecessary movement of empty cars.

When the settlement for the use of foreign cars was on a mileage instead of a per diem basis, the principle that empties should be run in only one direction, and that opposite to the direction of the preponderance of traffic, was pretty generally adhered to. A cross movement of empties was then looked upon as exceedingly bad transportation. Since the change in the system, the penalty for holding foreign cars has been so heavy (at present 45 cents per day) that under most circumstances it pays to send foreign cars home empty, even when to do so they must travel in the direction of traffic.

The necessity of moving forcing empties homeward promptly has, probably, had a tendency to weaken the hold which the transportation officer a few years ago had upon the principle of moving empties in one direction only. The principle, however, is as sound to-day as ever it was, but it is conceded that, under the changed conditions, it must often be departed from.

The direction in which empties should move is naturally that opposite to the movement of the preponderance of traffic. The cost in that direction is comparatively small because the locomotives returning for loads are light enough to handle them and no additional locomotive mileage is necessary. When, however, empties are moved in the same direction as the balance of traffic, additional locomotive mileage is involved—but not only so, for the empties are being sent out of a territory where they are in demand, and for every such movement, an empty must be hauled in the opposite direction to take its place, except for cars of special classes and for which there is no suitable commodity.

A conservative estimate of the cost of hauling empty cars is 1½ cents per car mile. If, therefore, an empty suitable for traffic is sent in the direction of the balance of tonnage, a distance of 300 miles, the total additional mileage involved is 600 miles at a cost of $9.00—a sum well worth trying to save.

During last year 24 per cent of the car mileage on Canadian railways was empty. If by some means this percentage could be reduced to say 20 per cent it would represent a large increase in the net earnings of our railways.

Admetus

A "Poem" with apologies to the shades of Walt Whitman.

Cameradoes!
I sing the strong man!
I sing the man sent forth to do a task.
I sing the man proud in his energy, proved worthy, tied hand and foot by Circumstances,
I sing the man calm with the calmness of desperation,
I sing the song of the little railroad and its boss.

The little railroad, my brothers!
Not the terrible, thundering trains that tear through tunnel and over trestle,
Not the Systems that span this splendid continent indissoluble,
Not the Santa Fes, nor the Burlingtons, nor the Friscos and the giants of transportation,
Not the Eries, nor the Altons, nor the Pacifics that link lake to gulf and ocean to ocean,
None of these I sing.
I sing the two streaks of rust. I sing the two by four railroad of no particular length but wide as any,
I sing the song of the foolish built railroad, the unnecessary railroad, the little railroad and its Boss.

Cameradoes! Brothers! You have had a dream
I swear you have had a night-mare when danger followed you and you could not stir.
Struggling, panting, bending, writhing, you would escape the Thing that pursued,
But you advanced not a foot and the Thing gained on you.
And Fear and Terror overcame you so that at last you awoke exhausted, powerless,
I say Life itself is such a nightmare for the boss of a little railroad.

Not for the boss of a little railroad are many things,
Not for him the Pullman and the Inspection train and the rear platform, brass railed and shining,
Not for him the persevering porter and the daily shoe shine,
Not for him the respect of the section boss as the train thunders by:
Not for him the annual pass and the invitation to dine with the banker:
Not for him the smile of the manufacturer, or the splendid box of cigars, or the public presentation and praise or the magnificent scorn of the Chief Clerk,
None of these delights are for the boss of the little railroad.

For he is the Alpha and Omega.
He is the entire lactic coagulation.
The titles that others enjoy, are his burdens.
Not Three in One, but many in one.
He is alone, solitary, unconnected, unaided.
He is General Manager and Freight Agent and Boss of the wrecking crew.
He is Treasurer, and Auditor and bridge boss.
He is Comptroller and Stenographer and Freight Handler,
He is Boiler Inspector and Roadmaster and Office Boy,
He is everything—and the boss of the little railroad.

Cameradoes! Allons! Let us examine.
His road runs from nowhere to nowhere,
(He says it is all he can do to keep it from running to Hell.)
His ties need renewing and his bridges rebuilding,
His rolling stock is ancient, old time, coeval with the prairie schooner,
His banks cave in and his fills wash away with the heavy rains,
His cuts are threatened with the thaws,
His despair is great as he notes that the flues in engine 003 need renewing,
His coal is poor for the road's name as a prompt payer is the same,
His passenger earnings are cut down as the popularity of the Ford auto increases,
His taxes increase in consideration of the freight rate's fall,
His mail earnings lower as his pay roll goes up,
His connecting line hands him cars with big advances and the banker frowns on an overdraft,
His mind is worried as the Commissions call for reports in sheaves, and volumes and bales,
For of all men the boss of a little railroad carries a load that would stagger a Vanderbilt.

But, Cameradoes! This is the unkindest cut of all.
When he feels tired, and worn and weary,
When he dreams of a trip over the lines of the big roads, the rich roads on which he served his apprenticeship,
The roads on which he would have risen had Fate not disposed of him,
His heart turns to water when he reads:
"It is not consistent with our policy to exchange transportation with roads of your size,"
For the sorrows of no man are like unto the sorrows of the boss of a little railroad.

Cameradoes! Of him I sing.
Of the man on a little railroad I sing!
I say he is as glorious a thing to sing of as the General Manager of a Trunk Line:
And on his tomb-stone will I sit and sing:
"HE DONE HIS LEVEL BEST."

JACK RANDOM.

New York, Philadelphia and Norfolk to Establish Pension System.

A PLAN of retiring old employes on pensions, and of extending relief in cases of accident and sickness will be established January 1, 1915, by the New York, Philadelphia and Norfolk Railroad, and the Cape Charles Railroad Companies. These lines form parts of the Pennsylvania Railroad System.

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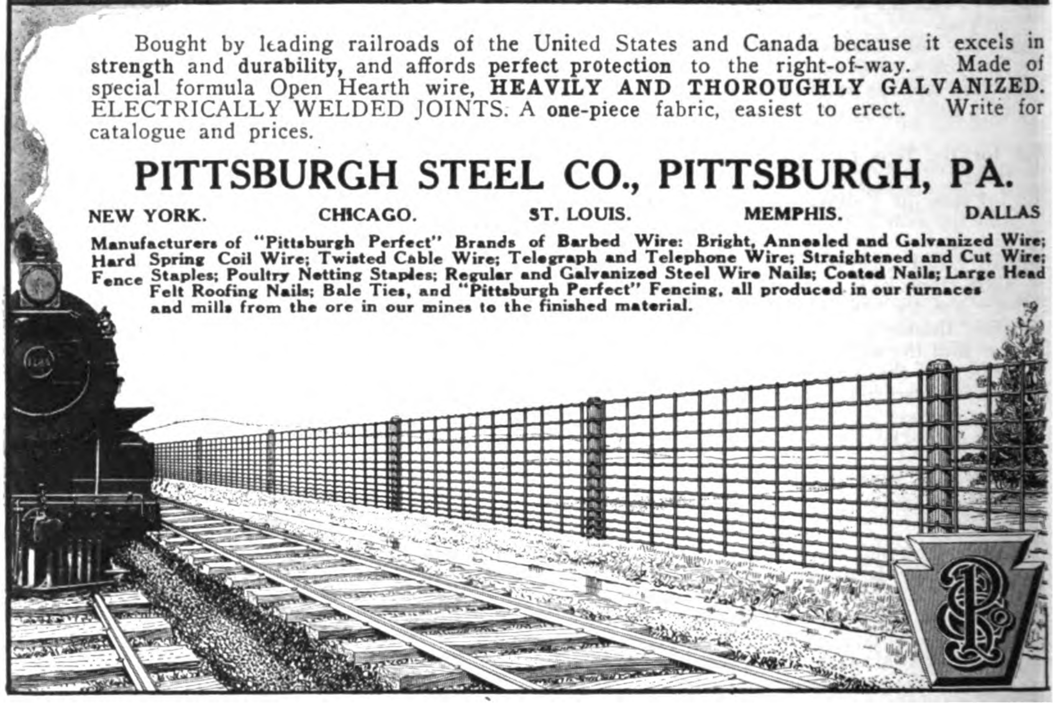

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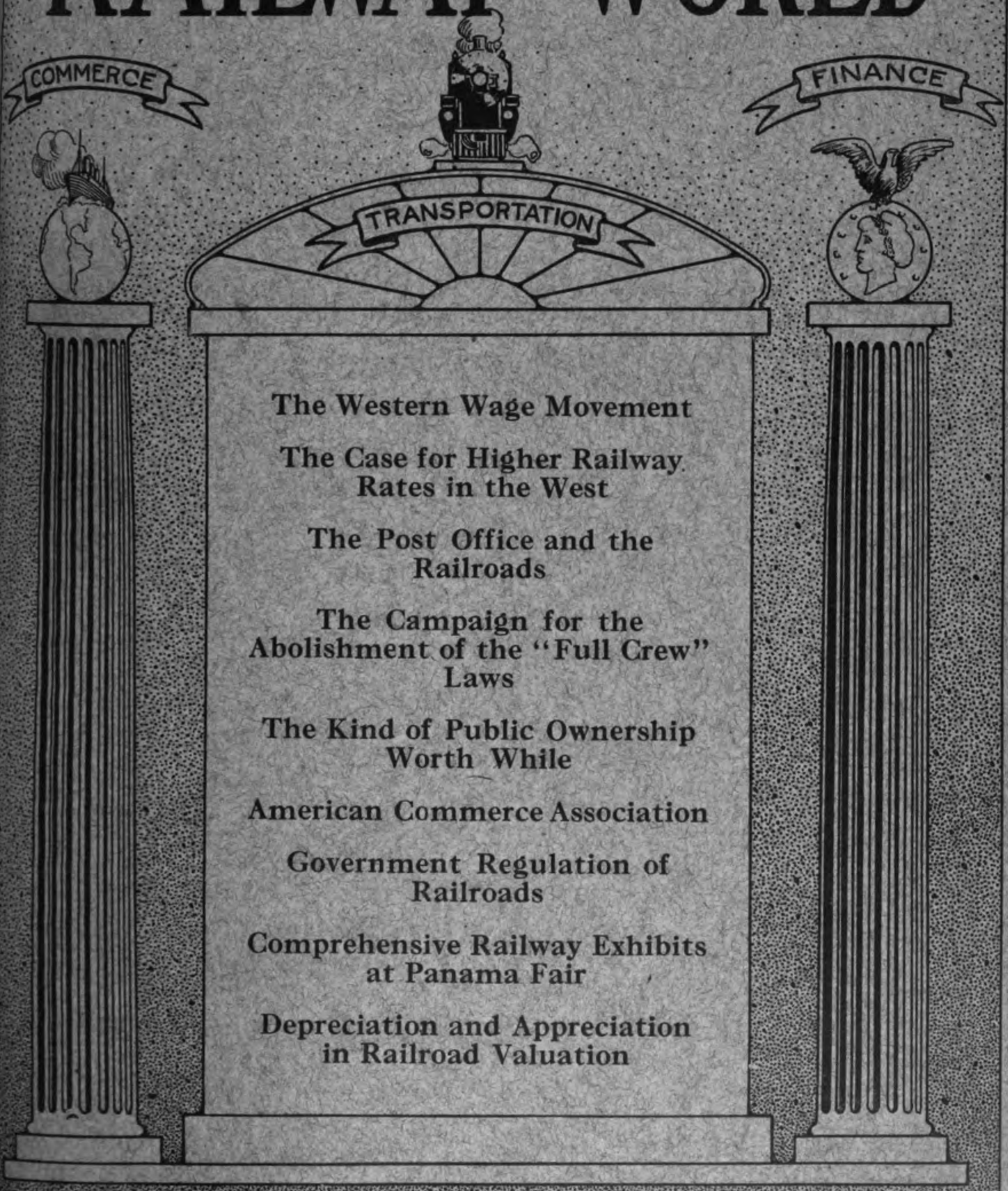

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(c) Those who lay out and make the installation. Mechanical engineers, chief draftsmen, car designers, car and locomotive builders, railroad inspectors, etc. These men are concerned most with matters of braking power, leverage, distribution of apparatus on the car or locomotive in relation to other devices, and similar work.

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VOLUME LIX ESTABLISHED 1856 NUMBER 4

A MONTHLY JOURNAL (successor to Railway World, a weekly publication) designed to present an accurate and comprehensive review of current events pertaining to Transportation, Commerce and Finance and to afford a medium for the development of a clearer understanding of the mutuality of interest which exists between those who employ and those who operate the railways.

Publication Office: 612 Chestnut Street, Philadelphia, Pa.

NEW YORK OFFICE.
206-7 HUDSON BUILDING, 32 BROADWAY.

PITTSBURGH OFFICE.
504 GERMANIA SAVINGS BANK BUILDING.

TELEPHONE NUMBERS.
PHILADELPHIA ....Walnut 228
NEW YORK ....Broad 6889

Terms: $3.00 per Annum in Advance
Foreign Subscriptions: $3.50 per Annum in Advance
Single Copies: 25 Cents
Advertising Rates furnished upon application

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The Directors have this day declared a quarterly dividend of two per cent. ($1.00 per share), payable April 15, 1915, to stockholders of record at the close of business March 31, 1915. Checks will be mailed.

LEWIS LILLIE, Treasurer.

AMERICAN CAR AND FOUNDRY COMPANY.
New York, March 3, 1915.
PREFERRED CAPITAL STOCK
DIVIDEND NO. 64

A dividend of one and three-quarters per cent. (1¾ per cent.) on the Preferred Stock of this Company has this day been declared, payable Thursday, April 1, 1915, to stockholders of record at the close of business Thursday, March 11, 1915.

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WM. M. HAGER, Secretary.
S. S. DELANO, Treasurer.

AMERICAN CAR AND FOUNDRY COMPANY.
New York, March 3, 1915.
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DIVIDEND NO. 50

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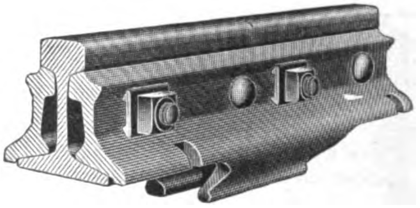

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Railway World

VOL. LIX. APRIL, 1915 No. 4

Important Developments in the Transportation Field

PROGRESS IN THE ENGINEER'S AND FIREMEN'S WESTERN WAGE MOVEMENT

The proceedings before the Federal Board of Arbitration which has recently been sitting at Washington considering the demands of Western engineers and firemen for a wage increase aggregating $41,000,000 per year, have virtually come to a close and the Board is now in full possession of the facts as developed by each party in the controversy.

It appears a foregone conclusion that the men have lost their case. They have not only failed to prove that recent developments have increased their labors and responsibilities, but their testimony has tended to place them in a decidedly preferred class as compared with all other branches of labor. In view of these developments, and the fact that the general present condition of Western roads justifies a decrease rather than an increase in wages, it appears that the men could not have chosen a less opportune time in which to press their demands.

In a brief filed on March 29th, James M. Sheean, attorney for the Western roads, contended that the exhibits and other evidence submitted on behalf of the railroads, had successfully withstood the most vigorous examination, while, on the other hand, the railway employes have failed to establish the purpose on which their demands for higher pay are based.

Warren S. Stone, Grand Chief of the Brotherhood of Locomotive Engineers, thus stated those propositions at the outset of the arbitration:

> In presenting our case we shall hope to show by our witnesses the changed conditions under which they work and the present requirements, as compared with the conditions in effect when the present schedules were agreed upon. * * * * These developments have had a three-fold effect on the engineers and firemen: First, increase in their labors and responsibilities; second, their productive efficiency has been greatly increased; third, their earning capacity, even at the slightly increased rate of payment they have received, has declined.

These three propositions Mr. Sheean took up in their order, first calling attention to the fact that the time "when the present schedules were agreed upon" was in the year 1910, through concerted movement on the Western railroads.

Mr. Sheean cited the decision of Seth Low and John H. Finley in the Eastern Trainmen's case, to sustain the position that the present demand for further increase can only be supported by showing that conditions have changed since 1910. He claimed that each of the basic propositions contained in Mr. Stone's opening statement was disproved not only by the railroad's exhibits, but by those which the employes themselves submitted. Mr. Sheean said:

> Since 1910 the railroads involved have expended over $660,000,000 in extensions, additions and improvements to property, and over $220,000,000 of this amount was expended for the purpose of increasing efficiency and safety and to expedite train movements. Engineers and firemen, with the larger power, which takes the higher rates of pay, have been able to get over the road in a shorter period of time than in 1910; and therefore the higher rates of pay taken by the larger power have been earned in fewer hours upon the road.
>
> With the installation of heavier power there has been constant improvement in the matter of labor-saving devices, such as mechanical stokers, coal-pushers, ash-pans operated by compressed air, pneumatic door openers, sloping tanks, etc., etc.
>
> As to the claim advanced that the so-called "productive efficiency" of the engineers and firemen has increased, the fact is that the net income from operations in 1914 was $15,000,000 less than in 1910; that in 1914 there was declared out of income $22,000,000 less in dividends than in 1910; that there was carried to surplus in 1914 $24,000,000 less than in 1910; and that in the first seven months of the current fiscal year there is a falling off of over $41,000,000 as compared with the gross revenues for a corresponding period in 1914.
>
> No witness on behalf of the employes contradicted the correctness of the interpretation placed by the railroads upon the proposals in arbitration in making application of said proposals to the actual operations on the roads involved during the month of October, 1913, in which the proposals were presented. The employes' expert statistician testified that if there was given to this month's operation only the importance which that month's payroll bore to the payroll for the entire year, an accurate estimate of the increased expense could be made for the year; and by the adoption of this method it is shown that through a year's operation the proposals would mean an increase in the payrolls of the engineers and firemen from $75,000,000 to over $115,000,000, or nearly $41,000,000.

Conceding that the rates and rules should provide full, fair and adequate pay for important duties and responsibilities, Mr. Sheean directed attention to these facts:

> When a fireman enters railroad service he is on the bottom rung of a ladder of promotion created by seniority rules under which the oldest man in the service has the right to make selection of his run. From the day he enters service he is guaranteed: 1. A minimum daily wage for every day he is called upon to work, no matter how few the hours he works or the distance he runs. 2. Pay for every mile he runs, no matter how short the time in which the run is made. 3. A minimum hourly rate, irrespective of the distance run. And with these guarantees, under the schedules now in force, some of the men are earning each year as high as $3,725 as passenger engineers, $3,342 as freight engineers, over $2,000 as passenger firemen, over $1,800 as freight firemen. From actual payroll figures here introduced, which give the names of every individual in engine service, with detail of his earnings, it is shown that in regular passenger service engineers earn as high as $341.60 per month, and that the average monthly earnings of all engineers in such service is $183; that firemen in such regular passenger service earn as high as $209.89 per month, and that the average monthly earnings of all firemen in such service is $115; that engineers in regular freight service earn as high as $358 per month, and that the average monthly earnings of all engineers in such service is $170, and that the firemen in regular freight service earn as high as $221 per month, and that the average monthly earnings of all firemen in such service is $110.

In conclusion Mr. Sheean said:

> These payroll figures demonstrate that the present schedules provide full, fair and adequate pay, whether measured by comparison with other trades, by comparison with other railroad employes who have like duties and responsibilities, or by comparison with engineers and firemen of the East or the South. These payroll figures have not been contradicted by the employes whose names appear thereon, notwithstanding the fact that during the hearing, while the railroad exhibits were being introduced, W. S. Carter, President of the Brotherhood of Locomotive Firemen and Engineers, stated to the Board of Arbitration:
>
> "I have reached the conclusion that our case is lost if we treat the exhibits of the railroads too seriously."

On April 2d, Warren S. Stone, Grand Chief of the Brotherhood of Locomotive Engineers, closed his argument in favor of the men. Mr. Stone's statements were liberally interspersed with such phrases as "grasping corporations," "unfeeling employers," "financial pirates," "stock jobbers," "watered stock," and "productive efficiency."

He made no denial of the fact shown by the payroll exhibits of the railroads that the members of his organization are now receiving the highest wages of all railway employes, surpassing not only the salaries of some railway superintendents, but even of the Governors of seven States.

Referring to the statement made before the Eastern arbitration board in 1910, that there was no reason why the Western engineers should be paid more money than those of the East on engines of the same class, Mr. Stone said he proposed to make the Eastern rates come up to the schedules of the Western line. He did not say when he would present the demands to the Eastern railroads for equalization of wages.

Mr. Stone manifested special bitterness when speaking of the "surprise tests," which the railroads make to ascertain whether the employes are constantly on the alert to avoid accident. Before these tests were made it was not uncommon for engineers to disregard danger signals and "take chances," and it was only through such tests that the railroads were able to prevent violations of their rules and safeguard the public. Nevertheless Mr. Stone condemned "surprise tests" as a "disgrace to civilization."

During the hearing the railroads proposed that the award of the arbitrators should prohibit any surprise tests endangering the lives of employes. Mr. Stone gave the railroads no credit for this offer and ignored it in his tirade against the "surprise tests."

Discussing prospective electric motive power on railroads, Mr. Stone said: "We claim that the engineers and firemen should handle all motive power of this country, whether steam, gasoline, electric or some other power to be discovered. We have an inherent right to handle all motive power. We have had it for years and we won't give it up without a struggle. We shall demand the same rates per tractive effort for running electric as we do for steam power."

Several times during his arguments Grand Chief Stone intimated plainly that if the award in this case fails to satisfy the engineers and firemen they will never again agree to submit wage controversies to arbitration.

On April 1st, Mr. Sheean closed his argument on behalf of the carriers and after a most thorough analysis of all the proposals made by the engineers and firemen for changes in rates and rules, he said:

> The railroads here have endeavored to present to the board of arbitration in the most accurate and reliable manner possible, what the men were actually getting in wages, and what the proposals submitted by them really mean.
>
> After submitting to the men and their corps of experts all the figures as to payrolls, time slips, and train sheets on which our estimate of increased cost was made, not a witness was placed upon the stand to question either the accuracy of our application of the men's proposals, or the accuracy of our payroll exhibits, which include every

man in the ranks of engineer and fireman who did any work on an engine during the month in which the proposals were made, October, 1913.

We showed that, counting all the engineers, including the extra men, 25,043 of them, each earned that month an average of $160.99; of these engineers 5,646 of the passenger class averaged $180.39; 8,984 of the through or irregular freight class averaged $163.68; 3,390 of the local or way freight class averaged $166.88, and 5,213 of the yard class averaged $129.86. Those are the engineers.

Of the 24,279 firemen, the average monthly wages of this total number of men was $100.63. Only 16 per cent of those shown for the entire year got their highest earnings in the month of October, 1913. Fully 65 per cent of the men were on assigned runs, not subject to fluctuations in schedule, and their seniority system insures steady work for a large share of the remaining 35 per cent

In no branch of industry is this great problem of unemployment so nearly taken care of as in this particular branch of railway service. It is not purely a ralroad problem. It is a problem that affects the question of what is to be done during the winter months for the harvest hands, what is to be done for the men who work in the forest, what is to be done by the seasonal fluctuations in trades. It isn't a problem affecting only this country, but affects every nation.

The fact and figures as submitted by the railroads, we contend, justify the statement which was made in the beginning, that a canvass of this entire field in the good faith effort to ascertain whether by comparison with other crafts or by comparison with the employes of Eastern and Southern roads, shows there was no fair cause for complaint.

The average tonnage of trains in the Eastern territory is 40 per cent greater than ours. This vast, scattering, Western territory, this vast territory where traffic must develop, has not yet attained to within 40 per cent of what is being hauled by engineers and firemen in Eastern territory. Why should we pay higher than the minimum rate fixed for conditions such as that? Why should the West—in the fixing of the minimum rate where traffic is 40 per cent less in density, where out of each dollar of investment we have but 15.51 cents with which to pay all labor, all classes of employes, all capital,—be placed on a higher basis than the basis fixed by arbitration in the East, especially when that basis thus fixed is the minimum rate in each class of service?

We believe in all sincerity that these men themselves, hearing only the complaints about the transitory, evanescent, hard experiences, have that fixed in their minds. We lawyers remember the nights when we stayed up 24, even 48 hours at continuous work to get a brief on file. These gentlemen, these officers of the organizations of employes here, remember about the hard occasional trip. They don't hear of the days and days, the 29 or 30 days out of 31, when the run is made in short time, for big money. We don't believe they have had a fair picture of this whole field. We believe the figures we submitted, viewing this whole situation as one picture, surprises them—that they were surprised by the showing of atcual facts and figures as to what the men are now receiving as a class, as a whole

We are not surprised that Mr. Carter, in connection with our payroll exhibit for the entire year, should say that his case was lost if you took our exhibits too seriously.

On the issue thus made we ask that the issue be treated seriously. We believe that it should be treated seriously. And we believe that such serious consideration can only lead to one conclusion, and that is the conclusion stated at the outset, that these men, treated as a class, with the schedules under which they are working, are receiving full, fair, and adequate compensation, reasonably commensurate with the duties that they perform and perform well, and for which they should be, as we believe they are, well paid.

After expressing his appreciation of the consideration and patience manifested throughout the long hearing by the members of the Board of Arbitration and thanking the secretary of the Board, H. S. Milstead, for the courteous and efficient manner in which he had discharged his onerous duties, Mr. Sheean said in conclusion:

To the gentlemen upon the other side, now that the battle is over, we want to say that we have presented the facts and figures which we feel ought to persuade them as well as to persuade the arbitrators; that it ought to leave the men satisfied and contented; that when they see the whole field and view the situation as a whole, the members of their organization will realize that they have in truth and in fact no just ground for complaint concerning present conditions in Western territory.

The present wage demands of engineers and firemen were first made upon the railroads, October 10, 1913. The railroads offered to arbitrate the whole question of rates and rules, canceling schedules adopted in 1910. The employes refused to consider the requests of the railroads and insisted upon the arbitration only of their own demands. The intercession of President Wilson alone prevented a strike from beginning on August 7, last year. Under the Newlands Act the Board of Arbitration was appointed, consisting of Hon. J. C. Pritchard, United States Circuit Court, Asheville, N. C., and Charles Nagel, former Secretary of Commerce and Labor, as the neutral members. H. E. Byram, vice-president of the Burlington, and W. L. Park, vice-president of the Illinois Central were selected for the railroads, and F. A. Burgess and Timothy Shea were seletced respectively for the Brotherhood of Locomotive Engineers and Brotherhood of Locomotive Firemen and Enginemen. The arbitration hearings began in Chicago, November 30, 1914. The testimony and arguments presented made a total of more than 2,500,000 words and the cost to the railroads and the brotherhoods exceeded $500,000.

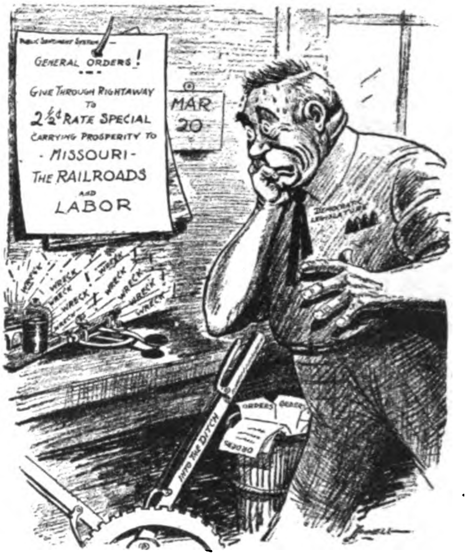
Before the hearing closed both sides agreed that the time for the arbitrators to render an award may be extended to April 30, if necessary. Chairman Pritchard said he hoped and believed, however, that the Board would be able to make its award by April 15.

THE CASE FOR HIGHER RAILWAY RATES IN THE WEST

The Western roads are making substantial progress in submitting testimony before the Interstate Commerce Commission now holding a hearing at Chicago for the purpose of determining whether these roads are entitled to certain increases in freight rates.

Unlike the Eastern rate case, which was decided in favor of the carriers, the Western lines are requesting increases on specific rates and their testimony during the past few weeks has been largely along the lines of proving the necessity and showing the reason for these individual increases. Grain and grain products, live stock, coal, perishable fruits and vegetables, rice and import traffic, have been given special attention. Those testifying included E. B. Boyd, Chairman of the Western Trunk Line Committee; E. P. Eyman, Western Freight Traffic Manager, Chicago and North Western Railway; Conrad Spens, Assistant Freight Traffic Manager of the Chicago, Burlington and Quincy; F. B. Townsend, Traffic Manager of the Minneapolis and St. Louis Railroad; Eugene McAuliffe, General Coal Agent of the St. Louis and San Francisco; J. M. Daily, formerly General Superintendent of Transportation of the Illinois Central; J. S. Hershey, General Freight Agent of the Gulf, Colorado and Santa Fe; L. M. Hogsett, General Freight Agent of the International and Great Northern; C. W. Owen, Assistant General Freight Agent of Morgan's Louisiana and Texas Railway and Steamship Company; W. M. Rhett, Assistant to Freight Traffic Manager of the Illinois Central; B. J. Rowe, Coal Traffic Manager of the Illinois Central; C. Haile, Vice-President of the Missouri, Kansas and Texas, and a number of others.

Responsibility


GENERAL ORDERS!
GIVE THROUGH RIGHTAWAY TO 2½¢ RATE SPECIAL CARRYING PROSPERITY TO - MISSOURI - THE RAILROADS AND LABOR
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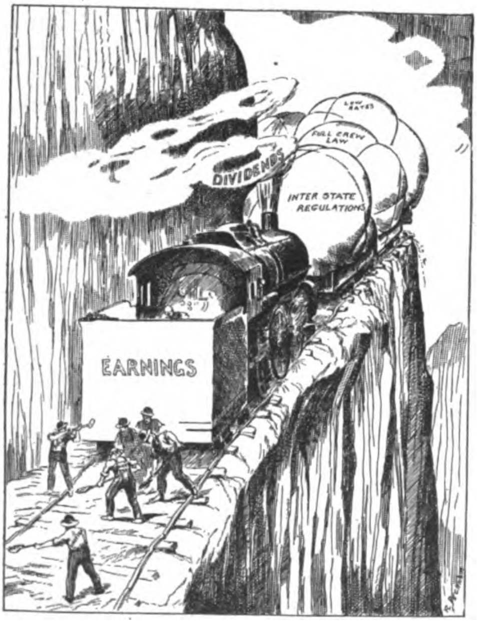


"ALL THAT THE TRAFFIC WILL BEAR"

On April 9th, C. C. Wright, Chief Counsel for the Western roads, made a vigorous protest against the demand of opposing shippers that the carriers compile answers to a long list of interrogatories. Mr. Wright stated that similar questions had been put to the carriers in the Eastern rate case and were not used after the roads had been put to a tremendous expense in compiling information, and the case had been delayed for months. It was his contention that the questions would be proper in a general investigation of railway management, but were out of place in the present case. He also asserted that the request comes too late in the case, and that the demand is unnecessary, as all books and original records of the carriers have been opened to the shippers from the beginning. Mr. Wright said:

> In response to the request made by Mr. Thorne, as chairman of the organization of the various State Commissions, at the close of the carriers' testimony in I. & S. Docket 555, I desire to say that the carriers object to furnishing the information requested for several reasons.
>
> In the first place I direct the Commission's attention to the fact that this request comes at a very late day in the proceedings and it would now be impractical to secure all the data asked before the final submission of this case. No reason is suggested as to why the request should have been thus delayed.
>
> That, however, is not the chief objection to the furnishing the information in the form required. I would call the Commission's attention to the fact that the situation concerning this Western Rate Advance Case is entirely different from the conditions surrounding the Eastern Advance Rate Case, known as I. & S. Docket 333, particularly in this, that in the Eastern Advance Rate Case the Commission had undertaken, on its own initiative, a general investigation, not only of the propriety of the rates proposed, but also of the general course that might be pursued by the carriers in meeting the situation. It was under the general investigation that the Commission thought proper to promulgate the seventy-eight interrogatories which were prepared and filed in that case. From the opinion in the case it would appear that the great part of the information thus obtained was not germain to the particular subject in hand, i. e., the propriety of the rates contained in the suspended tariffs, but was valuable, if at all, only as a part of the general investigation which the Commission was carrying on at the same time.
>
> No such situation exists in the present case. The request is qualified so as to exclude part of the interrogatories included in the general investigation by the Commission, No. 5860, but an examination of the interrogatories which are presented discloses that few, if any, of them are pertinent and germain to the matters presented in I. & S. Docket 555.
>
> I do not discuss these requests individually, because the request covers them all together. Much of the information to be disclosed by answer to these interrogatories has been presented to the Commission in another form, and it seems to me a potent reason why the request should not be granted is the fact which has been admitted of record by the complainants, that the carriers in this case have, at the request of the various State Commissions, opened up for their inspection and thorough examination all of their records, books and accounts.
>
> Soon after the setting of the present case for hearing, representatives of the State Commissions requested the privilege of making an examination of the books and records. The chairman of the organization of the various State Committees addressed a letter to the chairman of the attorneys in charge of the matter for the carriers, asking that they might have an opportunity to inspect such records as they desired.
>
> Acting upon that letter, the committee requested the other carriers to furnish every facility to the accredited representatives of these State Commissions in the examination of the records and the original data from which the records were made. As a result, the books and records of all the companies have been opened to the full and complete examination of the State Commissions for a period of more than three months. There is but one exception, and that relates to a single line, upon which the inquiry was made since the opening of this hearing, and that refusal was upon personal grounds of the single railroad only.
>
> The State Commissions have had a large force at work, examining the books of the various companies, investigating their original records, their income accounts and their property accounts, as well as the actions of their directors. That fact in itself obviates the necessity and renders it inappropriate that the request now made should be granted.
>
> The record of this case discloses that from time to time the representatives of the State Commissions have asked for information of a most general and extensive character, which the carriers have either furnished or are preparing for them. Some of the requests have involved a large expenditure. The expense incident to requests already made has been very great and the expense of the present requests would be large.
>
> The carriers are ready to undertake anything which may be deemed material to a full and fair presentation of the propriety of the rates suspended in I. & S. Docket 555, but are unwilling to further gratify the curosity of the complainants in matters which do not bear upon the issue before the Commission.
>
> Therefore, in the name of the carriers involved and of the Committee in charge of such hearing for the carriers, I protest against the granting of the request contained in the letter of Mr. Clifford Thorne, under date of April 8, 1915.

DEVELOPMENTS AT WASHINGTON

A decrease of about $4,000,000 in the net operating revenues of the express companies of the United States is shown by the Interstate Commerce Commission's report on the statistics of express companies for the year ended June 30, 1914, as compared with the previous fiscal year. The express companies embraced in the totals are the Adams, American, Canadian, Canadian Northern, Globe, Great Northern, Northern, Southern, United States, Wells, Fargo and Company and Western.

The Commission's report shows the gross receipts from operation in 1914 (fiscal year) were $158,891,326.67, as compared with gross receipts of $168,880,923.13 for the previous fiscal year. The operating revenues received by the express companies, according to the Commission, amounted to $78,985,248.29 in 1914, as against $85,008,425.96 in 1913; the operating expenses were $77,221,993.81 in 1914 and $79,215,707.71 in 1913, leaving net operating revenue of $1,-

763,254.48 in 1914 and $5,792,718.25 in 1913.

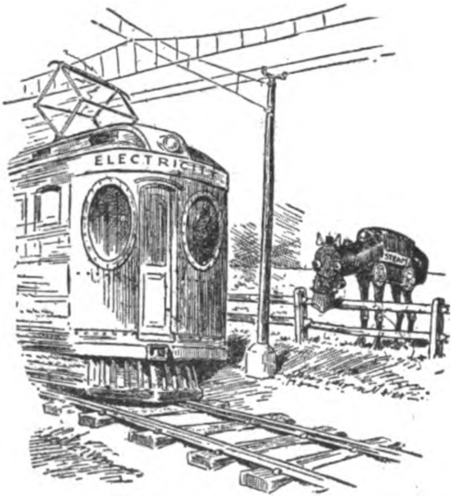
Outside operations produced for the companies a loss of $33,886.55 for 1914 and $59,932.30 for 1913, making the total net revenue $1,729,367.93 in 1914, as compared with $5,732,785.95 in 1913. Taxes accrued, according to the report, amounted to $1,491,698.62 in 1914 as compared with $1,379,258.40 in 1913. This made the operating income $237,669.31 in 1914, as compared with $4,353,527.55 in 1913.

The report shows the express companies received a total of other income of $4,531,740.46 in 1914, as compared with $5,563,792.18 in 1913. This was made up of income from profits on separately operated properties, dividends on stocks owned or controlled, interest accrued on funded debt owned or controlled, interest on other securities and miscellaneous investments. This brought the total net income up to $4,531,740.46 in 1914, as compared with $9,917,319.73 in 1913.

Deductions from this total, however, were to be made, because of losses on separately operated properties, accrued interest, etc., making what the Commission styles the "net corporate income" $3,499,721.25 in 1914, as compared with $8,610,889.40 in 1913.

Out of this was paid $2,986,250.24 on dividends declared from current income in 1914, as against $4,679,823.44 in 1913. This brought to balance for the year carried forward to credit of profit and loss $513,471.01 in 1914, as against $3,924,471.24 in 1913.

Although the Interstate Commerce Commission held a protracted hearing on the matter, there still is much speculation and little definite indication as to what effect on railroad freight rates will be from the Cummins law, passed at the last session of Congress, requiring common carriers to take full liability.



A-Glimpse of the Future.—*Philadelphia Record*

The Commission called a hearing for April 10, inviting the railroads and shippers to send representatives, at which it was hoped to clear up the situation growing out of the new law. It will be recalled that, after the law was passed and Congress adjourned sine die, many claimed it automatically increased rates 10 per cent. Under the bill of lading approved by the Interstate Commerce Commission it was specified that shippers who insisted on full liability from the railroads could be required to pay a 10 per cent increase over the rates as filed and published. The new law prohibits the railroads from assuming less than full liability and it was contended that the Commission, in approving the uniform bill of lading with the 10 per cent clause for full liability, has given the railroads permission to make the horizontal increase in rates. The new law goes into effect June 3 and the Commission would like to know very much what the railroads are going to do.

The fairness of the railroads was very evident during the hearing before the Commission. Their representatives frankly said they did not intend to increase rates 10 per cent under the new law but did contend that they were entitled to some advances in view of the full liability law.

Representatives of the roads in Official and Western classification territory said during the hearing they did not know how much of an increase they should ask for. But in view of the increased liability, they were united in a belief that some increase should be allowed.

The railroads in Southern classification territory announced their determination to increase rates ten per cent in some cases and five per cent in others, depending on the character of the shipment. They went further to ask that the Commission give permission that the new rates go into effect when the Cummins law becomes effective—June 3—even though they cannot be filed, as required, thirty days in advance. Commissioner Clark remarked that he thought under the law, the rates would have to be filed May 3, if they are to become effective June 3.

Perhaps the most important statement of

the hearing was that given by O. E. Butterfield, representing carriers in Official classification territory. It was his view that the Commission should construe the new law to allow carriers to eliminate from their present bills of lading the clause fixing liability for damages to the "invoice price" of the shipments but retaining the clause giving value "at the place and time of shipment" as the basis for damage claims. The announcement of such a construction, he urged, should be made before the new law becomes effective, June 3, and the roads for which he was speaking would not expect any general increase in freight rates. He argued that there is increased liability, under the new law, with respect to live stock, household goods, glassware, paintings, and a number of other commodities, rates on which depended on values, and that the Commission should allow an increase of rates.

A sharp difference of opinion was developed before the Interstate Commerce Commission April 12, in the course of the arguments on the proposal of Western railroads to reduce the rate-making basis from Eastern points to points in what is called the back-haul territory in coast and intermountain States. Following a recent decision of the Commission, ordering the rates to back-haul points reduced to "somewhat less" than the through rate to Pacific Coast terminals plus the return rate to the destination, the railroads proposed to make the terminal rate for rate-making purposes seven cents less per 100 pounds on carload lots than the real terminal rate. To this the rate for the haul-back would be added to make the new rate to back-haul points.

Pacific Coast seaboard cities and cities some distance back in the interior were loud in their shouts of discrimination. The theory back of the drafting of the tariff is that of allowing the inland cities equal opportunities of distribution as those cities having the advantage of water transportation. The coast cities, of course, reply that the Commission, if it allows the rates, will deprive them of their natural advantages as coast cities.

So strong has the feeling developed over these rates that there are some who profess to believe that the result will be a radical change in rate legislation, that it may result in law requiring freight rates to be based on mileage and the elimination of the theory of water competition with the substitution of the fact of such competition wherever it exists.

Each decision day of the Supreme Court of the United States will be watched with especially keen interest by railroads until there is a decision of the now-famous "railway mail pay divisor" case which was argued before the highest tribunal in the land a few days ago. It is estimated that about $35,000,000 is involved in the decision, affecting about 800 railroads. The railroads contend that the Government has illegally withheld that amount which should have been paid them for carrying the mails. The test case is that of the Chicago and Alton Railroad Company against the United States.

The suit grows out of a change ordered by the Postmaster General in fixing the rate of compensation for the mails after the weighing has been done. Prior to 1907, it was the practice to weigh the mail each day for a period of 105 days, divide the result by 90, the number of working days in that period, and thus fix the per diem payment. Subsequently, the Postmaster General decided the total weight carried in the 105 days should be divided by 105, the total number of days, giving the "seven day divisor," as against the "six day divisor" under the old system.

The controlling propositions, as set forth in the brief of the Chicago and Alton and the arguments before the court, were summarized as follows:

> The effect of the Post Office appropriation act approved March 2, 1907, is to prohibit a departure from the divisor which had been used, in computing average weights of mails in order to ascertain what compensation was due the railways for the transportation thereof, ever since the mail system of paying mail-carrying railways by weight was established.
>
> By the legislation of 1876, 1878, 1905, and 1907, successively modifying in other particulars the act of March 3, 1873, Congress adopted, as a fixed feature of the law, the method of computing weights that in administration of the act of 1873 had been uniformly pursued by the Department.
>
> When in performing a function imposed upon them by a statute, administrative officers of government have constantly pursued one practice therein during more than thirty years, and in that period there has been additional legislation at intervals of three, five, thirty-two, and thirty-four years on the same general subject, but without mention of that particular function, that practice is adopted and incorporated into the legislation of this description enacted at the end of that period.
>
> Since, in determining the pay for railway mail transportation, weight of mail is one factor and the rate per pound is another factor, and these are so correlated that the same result could be

obtained by making a change in either one or the other of these factors, and Congress, after considering both, has made a change in the factor of rate alone, the factor of weight, with the method of its computation, stands unchanged.

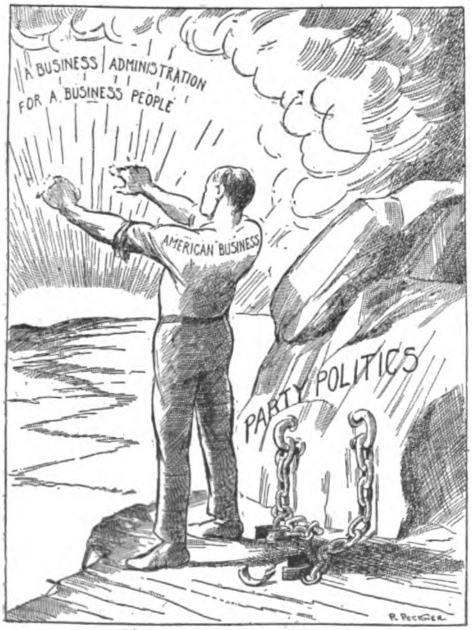
The Postmaster General has no discretion by which to pay to a railway company for transportation of the mails any other compensation than that designated in the laws.

A railway company can not lawfully avoid carrying mails which have been put on its trains by agents of the United States Government.

Where one party has accepted an invitation of another to join in performing a service, but has noted an exception as to the compensation proposed to him, and thereupon the service is inaugurated by the other party and the party first mentioned proceeds to perform his part of the service, as described in the invitation, there is a complete contract; and complete performance of the contract requires that the reversed question of compensation be thereafter decided either by agreement or by adjudication.

INTERFERING WITH BUSINESS

There are growing indications that the business men of the country are becoming mightily stirred over continued governmental efforts to unduly interfere with, and control business activities. This is bringing to the surface a large amount of information relative to experiments along similar lines in other countries, and by the time the next Presidential election rolls around, the American people are likely to be well informed regarding the ultimate results of such influences as have been developed at Washington during the past two or three years.

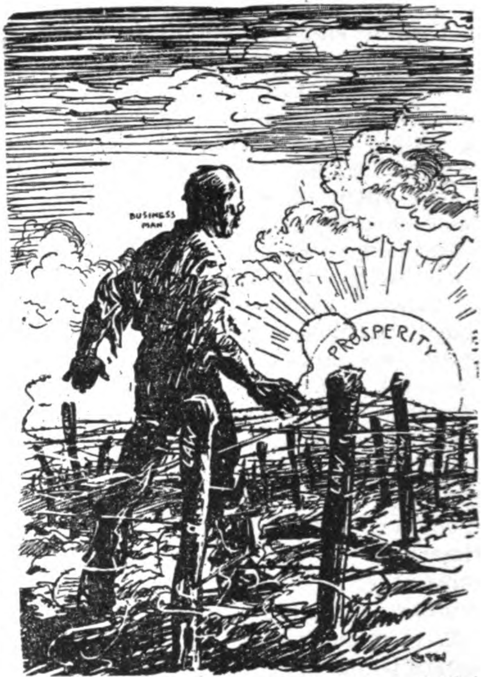


THE DAWN OF A NEW FREEDOM.

—from *Financial America*

"Americans Must Always Keep Their Faces Toward the Future"

[SENATOR ROOT]



(From the New York Sun)

Testimony of an unimpeachable character indicates that the recent drift towards an almost unlimited paternalism, is one of the most dangerous tendencies which confronts the Nation. While World conditions are far from normal, there is a growing conviction that the distressing experiences through which this country is passing are more largely due to governmental mismanagement of our internal affairs, than to any other cause. Had the present Administration restricted itself to the correction of evident abuses and the enactment of laws which would make their continuance impossible, there would be no room for criticism, but drunk with temporary power, and lacking in necessary experience, they have attempted, in a large way, to play an active part in the actual conduct of business affairs.

One of the most interesting developments of the whole controversy is the light which has been thrown upon the experiments of government ownership or control in other countries. These, with but few exceptions, have resulted in flat failures, not only enormously adding to the tax burden of the people without any corresponding benefit, but often producing a state of incompetency, dishonesty and objectionable and restricted bureaucratic methods, impossible to contemplate in a growing and progressive country like the United States.

The results which have been obtained under government ownership of railways are no exception to this rule, and the country may indeed congratulate itself upon the fact that up to the present time, it has escaped those deadening influences so clearly manifested where government ownership has become an established fact.

The latest figures which have come to our attention refer to railway operations in Sweden. In that country, the Government owns and operates 2,850 miles of steam railways.

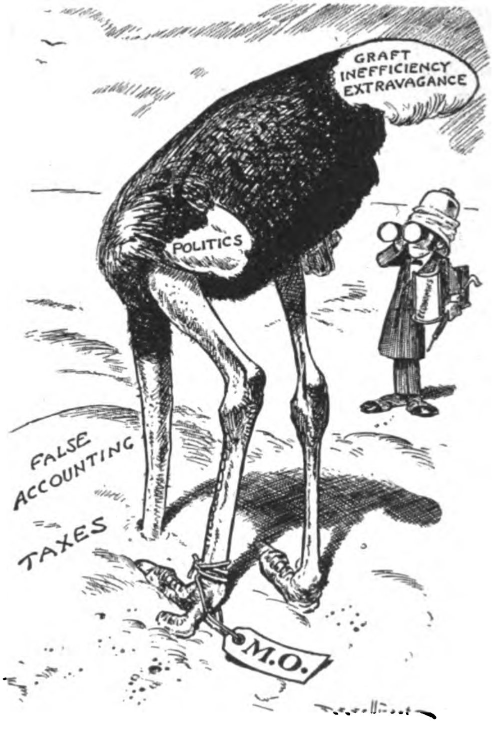
The total cost of these railways is $168,043,846 and the capital increase during the year 1913 amounted to $5,360,000. In operation, these railways received $15,168,000 from freight traffic during the year and $7,638,000 from passengers. The running expenses amounted to $16,857,200, leaving a balance of $5,949,600.

As the State railways of Sweden cost a total of $168,043,846, the annual interest charge of four per cent would amount to $6,721,753. The loss in taxes, based upon the rate which the privately owned railways of the United States pay, would amount to $1,425,000, or a total expense to be added to the running expenses of $8,146,753. Subtracting the balance from operation of $5,949,000, there is a total net loss of $2,197,153 for the year 1913.

The wages on the Swedish railways are only about one half what is paid in this country and the freight rates are three times as high as in the United States; yet with freight rates which average 2.23 cents per ton per mile the net loss on less than three thousand miles of railway amounted to $2,197,153 in one year.

The results in Sweden are not unlike to those obtained in other countries where the Government has assumed responsibilities better discharged by private enterprise. In contemplating this paternalistic drift, it might be well to remember that Senator Aldridge startled the country a few years ago by stating that the application of business principles in the management of the Federal Government would reduce the cost at least $300,000,000 annually. A later investigation conducted by a commission appointed by President Taft, fully confirmed the Senator's estimate. To quote from an article recently appearing in a magazine published by the Municipal Ownership Publishing Company of New York:

> The annual waste due to inefficiency and graft in the smaller cities and counties of the country is certainly not less than $300,000,000, and that of the forty-nine state governments as much more.
>
> Here, then is a yearly squandering of twelve hundred million dollars through governmental waste. The enormity of the waste seems incredible. It stuns the imagination. It is a shocking indictment of democratic government and a peremptory challenge.
>
> Los Angeles spends $10,000,000 a year in taxes and special assessments. The county spends $14,000,000 more, $8,500,000 of which is contributed by the taxpayers of the city. This means, if the percentage of loss here is equal to the general rate for the country at large, that $5,000,000 of the yearly cost of local government produces no results of value to the community.
>
> It is commonly assumed that the taxpayer pays for this waste and inefficiency. But this is an idle and pernicious fallacy. The main cost is not even in the form of money unwisely spent. But even if it were, the money cost is met mainly by taxes on real estate, and such taxes are usually shifted to the consumer. Increased taxes cause increased rents. These increased rents are passed on to increased retail prices of goods which are paid by



The Municipal Ostrich

Said a foolish Municipal Ostrich,
"I can hide my small items of cost," which
Wasn't quite true,
For a very plain view
Could be had from the rear of the Ostrich.

the final purchaser. Thus increased cost of government, even on the purely financial side, falls most heavily on the consumer rather than on the direct taxpayers for the reason that low incomes are expended almost entirely in rent and in products for immediate consumption.

But the main cost of inefficient government is not the financial cost. The human wreckage caused by ignorance, infidelity and incompetence in municipal service can never be completely estimated, nor accurately described. The real cost is in human lives, in sickness, poverty, misery, ignorance and crime, not in dollars; and this price is paid, in the main, not by the well-to-do but by the poor who are largely dependent upon the resources of the government for education, protection, recreation and health.

The men of wealth who are the large direct taxpayers can protect themselves with wholesome food and wholesome surroundings; but for persons less fortunately situated, the hope for these things lies in efficient government and the most painstaking application of public resources to public use.

The main cost of inefficient government is paid by the boy or girl who has inferior educational advantages; by the child who suffers from tuberculosis of the spine and is left a cripple for life; by the family which is pauperized through sickness and death from preventable diseases; by men and women who suffer discomfort, loss of vitality and lowered earning power by reason of unsanitary tenements, dark rooms and crowded and badly ventilated apartments; by babies who die from infected milk; by the victims of the gambler, the seducer, the vendor of adulterated foods and the dangers of germ-laden street filth.

From any point of view it is not those who directly pay the taxes who meet either the direct or indirect cost of waste of public funds or inefficiency of service. It is the men and women who are handicapped to-day and the children who will be handicapped to-morrow who are paying in money, in health, in happiness and in moral fiber a thousand times the cost that is paid by the taxpayer whose better fortune is often accepted as sufficient reason why the weak and unfortunate should consent to what has been so flippantly termed "honest graft."

THE POST OFFICE AND THE RAILROADS

While the controversy between the Post Office and the railroads has been temporarily suspended owing to the adjournment of Congress, the carriers by no means intend to relinquish their efforts to have all the facts placed before the American people. This appears unusually necessary in view of the attitude of Postmaster-General Burleson and Congressman Moon. It is astounding that men so high in the public trust of the people should so misjudge the fairness of the American public, as to believe their arbitrary and unfair attitude toward this whole question, will escape the censure which it so justly deserves.

How arbitrary this attitude is, is strikingly shown by comparing the opinions of other public officials who have given this question special consideration with those recently expressed by both the Postmaster-General and Congressman Moon:

To summarize:

1. The Wolcott-Loud Congressional Commission in 1901 said: "We are of the opinion that the prices now paid to the railroad companies for the transportation of the mails are not excessive, and recommend that no reduction thereof be made."

2. Dr. M. O. Lorenz, associate statistician of the Interstate Commerce Commission, calculated in 1913 that the railroads were underpaid certainly more than $5,000,000 per year for carrying the mails.

3. Mr. Louis D. Brandeis, counsel to the Interstate Commerce Commission in the advance freight rate case, said in May, 1914: "It seems clear that the railway mail service is at present unremunerative to the carriers."

4. The Bourne Joint Bi-Partisan Commission of Congress, in August, 1914, held the railroads entitled to an increase of at least $3,000,000 per year for mail transportation, with relief from burdensome incidental services they are now required to perform without pay.

5. But Postmaster General Burleson, in his public statement of March 22, 1915, asks the American people to accept his assertion that not only are the railroads paid too much for carrying the mails, but that they actually "loot the postal revenues."

Here we have the carefully weighed conclusions of two commissions of Congress and two officers of the Interstate Commerce Commission, on one side, and the dictum of Postmaster-General Burleson, made obviously under the sting of legislative defeat, on the other hand. The railroads need not fear the judgment of the people under such conditions, and it may be confidently expected that the next Congress will make a stronger effort to right an injustice under which the railroads have been laboring for a number of years, but particularly, on account of the installation of the parcel post, during the past year.

On April 4th, the Committee on Railway Mail Pay, of which Mr. Ralph Peters, president of the Long Island Railroad is chairman, issued the following statement which covers the latest developments in this controversy:

Postmaster General Burleson has publicly accused the railroads of being insincere in claiming that they are underpaid for carrying the mails. He says that in reality they are overpaid and to sustain this charge says that "they are receiving from the Government amounts which, for hauls of any considerable length, exceed by about two to one the amounts they receive from the express companies for like and similar services."

The dignity and prestige of the Cabinet office of which Mr. Burleson is the present incumbent assures him a hearing before the public and a large degree of credence, because of the natural assumption that a judicial attitude will be retained by a sworn public official, and that the responsibility he assumes in making any public assertion will be appreciated at least by himself.

Mr Burleson bases his assertion regarding the mail and express earnings of the railroads upon a number of comparisons of which this is typical:

He says that from New York to Chicago, "railway mail pay amounts to $2.58 per 100 pounds, while the railroads' proportion of the first class express rate between those cities is approximately $1.20 per 100 pounds."

Not one citizen in a thousand would ever suspect that this meant anything except that the railroads carry express matter from New York to Chicago for an average rate of only $1.20 per 100 pounds. The fact is, however, that the express rate Mr. Burleson names is not an average, or in any way a representative rate, but is the railroad's share of the express company's charge for a single 100-pound package, on which the very lowest wholesale rate per pound is given to the shipper. The railroads are paid approximately half the express company's charge.

The railroads' receipts from the smaller express packages, which make up the great bulk of the actual business—and hence their average receipts per 100 pounds of express—are far higher than the figures Mr. Burleson quotes, a fact of which it is scarcely conceivable he could be unaware.

For instance, for carrying 100 1-pound express packages from New York to Chicago, the express company would receive 23 cents apiece, or a total of $23. Of this amount, the railroad's share for its portion of the service would be about half, or $11.50, which is nearly 4½ times the rate for carrying 100 pounds of mail. Such a comparison, if offered as representative of average conditions, would be no more misleading than the one going to the opposite extreme which Mr. Burleson has used. The truth, of course, lies between the two extremes.

The railroads earned from express, in the latest year for which figures are available (1913), $78,000,000. The annual rate of mail pay to the railroads on June 30, 1913, was $51,466,000.

The growth of the revenue may be compared from the fact that the earnings from express traffic in 1907 were $57,000,000, while the annual rate of pay for mail on June 30, 1907, was $51,008,000. It, therefore appears that the mail pay to the railroads increased less than one per cent during the six-year term specified while the returns to the railroads from express traffic increased 37 per cent.

This entire question of mail and express receipts was thoroughly investigated by the Joint Congressional Committee on Railway Mail Pay, which filed its report last August. The Committee's finding on the general subject was this:

"Suffice it to say that we are convinced that the railroad earnings from mail were in 1909 decidedly lower than from express on a car-mile basis, which is the best basis for comparison we have. Certainly there is no warrant in the oft-repeated assertion that the Government is being robbed in its mail payments by comparison with what the express companies pay. There has been an amazing amount of reckless assertion on this subject."

As to the particular form of argument which the Postmaster General has employed in his statements to the newspapers, and which was also used during the hearings before the Joint Committee, the Committee's report says:

"Figures were submitted by the Department comparing the average payments for mail transportation between specific cities per 100-pound and per 40-pound packages, with 50 per cent of the first class express rates recently approved by the Interstate Commerce Commission, the 50 per cent being taken as the railroad company's share of the earnings. * * * *

"We are compelled to reject the Department's attempt to show higher relative earnings from mail as reckless and misleading."

Inasmuch as the Joint Committee was especially designated by Congress to investigate and settle this and similar questions, and spent two years in so doing, its conclusions should be authoritative.

Nevertheless, if it is possible that the Postmaster General has any remaining doubts on the subject, he could readily resolve them by an appeal to the Interstate Commerce Commission, before revealing his state of mind to the public.

Mr. Burleson needs to wake up. His sweeping assertions with no tangible evidence to back them, simply tend to arouse suspicion in the minds of those who desire to see the question fairly settled upon its merits. Some of his more recent utterances, in view of the results obtained through Congressional investigations of the whole subject, would make it appear that he is either deliberately mis-stating facts or is remarkably ignorant of the true state of affairs. In any event, there is such a marked bias in what he has to say that the country is rapidly losing its confidence in the common fairness of his attitude. As the Washington (D. C.) *Herald* of March 23d, puts it in an editorial:

> The railroads accuse the Post Office Department of attempting to rob them, while Postmaster General Burleson says the roads want to loot the postal funds. Senator Weeks exonerates the railroads, but no one rises to explain the justice of the Department's demand that the railroads transport the parcel post shipments without pay.

To the above might be added the following, taken from an editorial appearing in the New York *Journal of Commerce* of the same date:

> The railroads have a right to expect fair treatment and ought to know whether they are getting it or not. The public should be willing and we believe are willing they should have it. Why should the Postmaster General get so hot over it? Let us have the real facts fairly stated and get a disinterested judgment.

This fierce baiting of railroads is no longer worth while.

Senator John W. Weeks, of Massachusetts, recently gave an outsider's view of the attack of Postmaster General Burleson, through the aid of the press agent of his Department upon the railroads. Senator Weeks' statement was in the form of an interview given to the Boston *Evening Transcript* of March 22d, and was as follows:

I have read in this morning's paper the statement which has just been issued by the Post Office Department relating to the compensation which should be paid to railroads for transporting the mail. I am astonished that the Department is willing to be responsible for instituting such a propaganda.

This whole question of railway mail pay has recently been very carefully considered by a commission authorized by Congress, consisting of three Senators and three Representatives, three of whom were Democrats and three Republicans.

This Commission made a unanimous report providing for payment to railroads for transporting the mail on a space basis rather than the weight basis, the method of determining payment which has obtained in the past. The Department accepted the report as far as the method to be followed is concerned; but, without, in my judgment, suitable reasons, it has changed the rates which should be paid for this service.

The figures and comparisons which are made in the statement I have read this morning are so unreliable that the railroads or any other class of citizens would be justified in combining to try to inform the public of their position. Indeed, it would appear necessary for citizens to do this in order to protect themselves from their own Government.

I shall not debate the subject now, because space forbids, and, further, I presume that the whole matter will come up next winter, as the Department's statement intimates. It will then be carefully considered and I hope properly adjusted. But I do want to make an accurate statement of the reasons for the failure of passage of the Post Office appropriation bill.

There would have been no question about its passage, and any inconvenience which may be caused by the necessity of reappropriating the amounts appropriated last year could have been obviated had not the Department insisted, in the hurried closing days of the session, upon including in the appropriation bill the Department's own conclusions on the important subject of the railway mail pay.

It is obvious to almost everyone that no such important change as is contemplated in this proposal should be made without Congress being fully informed on the subject. It should be so thoroughly and fairly debated that those who have not had the opportunity to become familiar with it may be able to act wisely and judiciously.

The subject was not suitably debated in the House and there was absolutely no time for debate in the Senate.

The Department's proposition, in addition to the question of the method to be pursued and the rates to be paid, contained a provision which contributed one of the principal reasons for the failure of the Post Office bill: This provided that Congress should make rates for carrying the mails and that the rates "should not exceed" those authorized by Congress, but that they might be modified to any degree by the Department itself.

I maintain that a principle of so great importance is involved in that proposition, that no thoughtful, foresighted man can favor it. In a word, the proposed plan would be similar to the fixing of rates by the Interstate Commerce Commission not to exceed the amount fixed, but allowing the shipper to modify those rates at his own option.

The Government should show an example of fairness and equity to its citizens and should not attempt to force upon them a proposition which contains neither of those qualities.

I notice the suggestion is made that the Post Office bill failed because of the activities of a "lobby" maintained by the railroads. This is a repetition of the old hackneyed cry which may have been effective in prejudicing opinion at one time, but which seldom should be given credence and certainly has no merit in this case.

While the contention of the railroads may or may not be fair and reasonable, it had nothing whatever to do with the failure of the bill. That failure was the result of the insistence of members of the Senate that this important question should be settled only after proper deliberation and on its merits rather than through pressure exerted at a time when the great supply bills for the maintenance of the Government were being hastily passed without suitable consideration. This consideration in itself would supply reason enough for the elimination of general legislation of the first importance.

The following editorial from the *Wall Street Journal* of April 7th, suggests the idea that the whole controversy may, in the fall, be turned over to the Interstate Commerce Commission for final settlement.

Such a pitch of acrimony have the relations between the Post Office Department and the railroads reached that the tentative and informal proposals made by non-official observers in Washington, that the whole question of railway mail pay be turned over to the Interstate Commerce Commission, can only be welcomed. That body has let it be known that it does not relish the prospect of being required, in certain contingencies, to pass upon actions of a co-ordinate branch of the Federal Government, possibly even to overrule its expressed judgments.

But that objection is slight in comparison with the advantages of putting the case for final decision before a disinterested tribunal specially qualified by experience for the work in question. With all due respect for Mr. Burleson and his predecessors and successors in office, no postmaster general can ever be wholly disinterested. The political necessity of making the best possible financial showing for his department puts him exactly in the position of an interested shipper.

And Mr. Burleson's recent outbreaks in support of the Moon rider to the post office appropriation bill, which the Senate refused to have crowded down its throat in the closing hours of the last

Congress, reveal his complete disqualification for passing equitably upon the plea of the railroads for higher pay. His raising of the threadbare charge of conspiracy to defeat the Moon bill may be ignored, since his latest statement indicates that he has concluded to drop it.

But the railroads' retort upon that statement clearly catches Mr. Burleson in a distortion of facts.

Mr. Burleson's comparison of the payment the railroads receive for the carriage of 100 pounds of parcel matter over long hauls with what they receive for 100 pounds of express matter over similar routes, purported to show that the former was approximately twice the latter. But Mr. Burleson selected, not the average compensation per hundred pounds for all express matter moving over the selected routes, but that for the transportation of a hundred-pound package, to which the lowest express rate applies. On the other hand, he used the average rate per hundred pounds for all mail matter of all classes.

Not only did Mr. Burleson ignore that the bulk of the express traffic is made up of packages of much less individual weight than a hundred pounds, and that, therefore, under the weight scale for express matter fixed by the Commission, the average rate per hundred pounds is much higher than the rate for hundred-pound packages. But he chose to ignore also the many glaring differences between the mail and express services.

The railroads are required to load and unload the mails, but not express matter. They must furnish post office cars built to the specification of the Postmaster General at an average cost of $12,000, whereas the express companies get baggage cars worth about $8,000. Mail matter must be moved on any train the Department directs, which means practically all passenger trains. Express matter is limited by contract to certain trains. The average load per mail car is much under the average express carload.

In short, the Postmaster General's attempt to prevent a deficit in his department at the expense of the railroads has led him into an essential misrepresentation of both the payment and the nature of the service rendered. It would seem impossible to persuade the next Congress to enact so palpable an injustice into law.

THE CAMPAIGN FOR THE ABOLISHMENT OF THE "FULL CREW" LAWS

The campaign which the railroads of New York, Pennsylvania and New Jersey are conducting for the abolishment of the full crew laws in these States, is producing some very tangible results and if the majoriy will of the people has any influence upon the legislative bodies involved, a victory for the carriers appears certain.

Not only have the newspapers taken up the question with a strong demand for the repeal of these laws, but private individuals are taking an unusual interest in the progress of the campaign, and hundreds of thousands of names have been signed to petitions sent to the legislative bodies of these States.

The situation, as it has developed in Pennsylvania, was interestingly reviewed on April 15th, by Mr. J. C. Johnson, Superintendent of Telegraph of the Pennsylvania Railroad, in an address before the Jovian Club. To quote from his remarks:

> The people of Pennsylvania have requested their Legislature to do certain specific things concerning the manning of railroad trains. The request is in several ways unique. It comes from the railroads—from twenty-one of them—from all operating in the State of Pennsylvania, and it comes from the public. This request from the public has come to the Legislature in most definite form; it has come to members of the Legislature from their constituents; it has come to them in the form of petitions bearing hundreds of thousands of names. It has come in letters to Representatives and Senators, in number more than 500,000; it has come from trade and commercial organizations of our State; from chambers of commerce, boards of trade, civic associations and grange organizations. About 150 of such have expressed their opinion. Also it has come from the newspapers not only in Pennsylvania, but of the whole United States; there have been submitted to the Legislature more than 600 editorials from nearly 400 newspapers, of which more than 325 papers in 523 editorials take the position which the railroads, which the voters, which the business organizations and which the people of the State have taken.
>
> This is not only an unusual but a mighty endorsement of the measure which is now before the Legislature of Pennsylvania to repeal the so-called Full Crew Law. The Legislature has heard virtually only from the particular class of railroad employes for a certain number of whom, about one in ten, the present full crew law arbitrarily makes positions. It is true that the trainmen's organization secured signatures to petitions, which petitions were submitted as an exhibit. You may be interested to know that these petitions carry the names of but 68,000 people. John C. Bell, the distinguished former attorney general, in his argument as counsel for the trainmen, asserted that "petitions are never read by those who sign them or by those receiving them." None the less, his brother counsel, Mr. Scarlett, submitted petitions which had been signed to uphold the present law. And, in passing, I might observe that name for name as to petitions and letters, the Legislature has been urged by eleven people to repeal the law for each one who has supported it.
>
> Again, wherever the voice of the people has had opportunity for expression it is rather significant, I think, that much this same ratio holds. Over at Reading the other day there was a referendum of the Chamber of Commerce members, and it resulted in 261 votes for the repeal of the full crew law against 26 for the law as it stands.
>
> Again, at Williamsport a similar referendum of the members of the Board of Trade there, resulted in 175 to 7; and yet once more, at Scranton, members of the Board of Trade there went upon record in this matter by a vote of 100 to 12.
>
> The proposition which is before the State lifts this whole question above the uncertain and differ-

> ing conditions of train operation on various lines and under the many circumstances which necessarily prevails, and would put it where all of these factors can be given intelligent examination. The railroads do not come to people asking that the public shall relinquish any hold upon them or their operation which now exists through this full crew law. On the contrary, they come to you asking that the strong arm of the public shall not only not be withdrawn, but that it shall be further extended so as to insure the proper manning of trains and put power in the hands of the Public Service Commission to compel any railroad which might be delinquent to put such number of men on its trains or any of them as may be necessary to insure safe operation and efficient service. The bill now before the Legislature will do these things if enacted into law. It will protect the trainmen against the possible danger of being subjected to more labor than should be imposed upon them and it protects the traveling public and the shippers by insuring the requisite manning of each train for the work it has to do.
>
> A law such as the full crew law is an insult to the intelligence of Pennsylvania. In the four years it has been in effect it has been conclusively demonstrated an error of legislation. It has failed to accomplish any of the purposes for which it was avowedly passed. The Legislature now has the opportunity and the duty to provide by legislative act a new and certain method of accomplishing in fact what its sponsors said this law was intended to do. The plain duty of the voters of this State is to insist that the Legislature do what the railroads ask, what the people ask, what the whole business community ask in this matter, and that is to enact the bill before it making the Public Service Commission supreme in the matter of the proper manning of railroad trains.
>
> Isn't our proposition fair? Put the question of proper manning of trains in the hands of your Public Service Commission. Can you see how the sponsors for this measure can oppose such a course? There can be only one reason. They know the railroads are right.

The result of these campaigns has been to place the matter squarely before the legislatures of the States involved. In New Jersey many prominent railway officials and business men representing themselves and trade organizations, have appeared before the Legislative Committee and argued for the repeal of the law. Exhibits of various sorts were also submitted, and statistics were brought forward by the companies showing the effects of the law.

One exhibit was of resolutions adopted by boards of trades, chambers of commerce, city councils, other organizations, and granges in the State; another was of newspaper clippings; and a third was a trunk full of petitions, carrying 58,811 names.

The railroads presented figures to show just what the full crew law has put upon them and through them upon the public. Last year, it was shown, the lines of New Jersey were put to a cost of $371,126 to comply with the full crew law. When it took effect it put 493 additional brakemen on trains in New Jersey. It now compelled the employment of 489 excess men, it was asserted. There were 476 trains manned in compliance with or in excess of the law's requirements, 1,609 trains not affected, and 876 upon which it was necessary to place an excess man. There are now operated in New Jersey 2,711 passenger and freight trains. Of these 309 are manned by the railroads with crews larger than the law requires.

Railroads of Pennsylvania and New Jersey on February 12, had in their service 262,764 men. Of these 54,782 were in train service and 24,822 were brakemen. Of these 2,345 are in the excess man class. Not one in ten of all brakemen holds his job through the law, and of all railroad employes in both States, only one in 112 is in the excess class.

It was asserted that the excess man on each of the fast through Western passenger trains operated across New Jersey made an additional operating cost on the trip from New York to Pittsburgh or Buffalo of about $2,600 a year for each train. Some of these trains, making very few stops, carry as high as fourteen men, not counting the dining car crew.

Other exhibits were introduced to show that accidents and casualties had increased since the full crew law became effective. The New Jersey railroads reported that in train accidents forty-two passengers and employes had been injured and one killed in the six months before the law. Comparative figures for six months ended January last showed 3 killed and 74 injured. In the first half of last year, under the law, 17 employes in train service were killed and 41 injured, to compare with 9 killed and 406 injured in the first half of 1911.

At Harrisburg, Pa., great pressure has been brought upon the Legislature to promptly pass the Baldwin bill, which would repeal the extra crew law and empower the Public Service Commission to direct the number of men the railroads should employ upon trains. This proposal is similar to the one urged before the New Jersey Legislature.

Among the exhibits presented by the railroads were 146 resolutions adopted by various business organizations of the State urging repeal of the extra crew law. It was pointed out that the railroads had received over 500,000 communications from individuals favoring the repeal, and a petition carrying 262,523 names was also presented. The line-up of the Pennsylvania papers on the question is 133 for repeal and 12 against.

It cost the railroads in Pennsylvania to comply with the extra crew law last year $1,359,400. Since the law went into effect in July, 1911, it has cost them $4,878,764.

George Stuart Patterson, general solicitor of the Pennsylvania, addressed the joint committee, and in urging the repeal of the law said that a great injury had been done to the iron and steel production of Pennsylvania by the burden placed upon railroad expenses, with the ensuing curtailment of their purchasing ability.

William I. Schaffer, counsel of the Pennsylvania Railroad, declared that it had been mistakenly asserted that the act under consideration was a repealing act, whereas in fact it was an amending and substitutionary act. "The railroads," he said, "recognize the propriety of the legal principle that they should adequately equip their trains, and speaking for the company that I represent this has always been done.

> The railroads' contention against the law is against its arbitrariness which requires them to put an extra man on all trains of a certain kind, whether needed or not. The legal principle running through the original act, that trains shall be adequately and properly manned, is not disturbed by the bill now up for consideration. All that it does is to put up to the tribunal created by the State, the Public Service Commission, the determination of the question as to what is a proper manning of the train.
>
> In its final analysis, this is a business and economic question. On its business and economic side, it would certainly appear to be fundamentally wrong that railroads should be required to hire and pay useless men. If the men are not useless they have nothing to fear from a decision on that question by the Public Service Commission.

H. M. Carson, general superintendent of the Central division of the Pennsylvania Railroad, argued that the present law compelled the railroads to maintain an arbitrary number of men on all trains without regard to improvements that had been made in safety and operating efficiency, not only prior but subsequent to its enaction, and declared that it was in principle unjust and retroactive, because it compelled the railroads to maintain a wasteful expenditure for unnecessary labor which could be profitably expended in other channels and it tended to halt all development.

Edward F. Henson of Philadelphia urged the committee "to assist in bringing prosperity by indorsing the repeal of the 'excess crew law.' The employment of more men than needed is a waste to the country at large. Any sympathy on the part of the Legislature to furnish work for additional men at the expense of the railroads should not stand in the way of repeal.

> The Public Service Commission may be relied upon to require that each train operated be equipped with sufficient men to insure safety and comfort. Every man employed in addition is a waste for which each citizen, you gentlemen not excepted, must pay. Take away from the income of the railroads and the result must inevitably be either higher fares and freight rates or crippled service. The public and the State are the losers in either case.

Thomas H. Greer, of Butler, Pa., stated that he had been a brakeman on the Pittsburgh division of the Pennsylvania from 1892 to 1899 and explained to the committee the improvements put in by the company since he left its employ. He said that the work of the brakemen and others had been reduced by safety devices, etc., and that at present the railroads were compelled to have more men on their trains than they did before the various improvements were made. An additional brakeman, he said, does not add to the efficiency of the movement of a train and in fact militated against the men themselves, making promotion slower.

How widespread has been the demand for the repeal of these laws was evidenced by a statement issued by President Rea, of the Pennsylvania Railroad on April 18th, as follows:

> There has just come to the committee of the Associated Railroads of Pennsylvania and New Jersey a report which shows that of 125 engineers 127 signed letters or petitions to members of the Legislatures urging repeal of the full crew laws on the basis proposed by the railroads. Of these men, two subsequently withdrew from this position, but that left 64 per cent of the engineers on one division taking a definite stand.
>
> On the same division there are 203 firemen. Of these 116 took action similar to that taken by the engineers. Three of them subsequently reconsidered what they had done. That left 57 per cent of the firemen taking an active position in the matter. Of the firemen and engineers together, 61 per cent of the men on this division stand with the company on the train crew proposition.
>
> Boards of trade, chambers of commerce, grange organizations, clubs, business and other associations, to the number of 261, in Pennsylvania and

> New Jersey are now on record in resolutions calling for repeal of the excess man crew laws.
>
> Editorial opinion as voiced by 685 editorials from 416 newspapers which have come to this committee is greatly in support of the proposition for repeal of the full crew law with power given to the public service commissions to see that all trains are properly manned. The supporting papers number 338, and have published 573 editorials upon the subject.

It was not until April 19th, however, that the House of Representatives of the State of Pennsylvania took final action, when by a vote of 135 to 68, the bill to repeal the full crew act of 1911 was passed. There appears little doubt that the Senate will pass the bill and it will become a law. The repealer vests in the Public Service Commission, about to be reorganized, power to require railroads to employ an adequate number of men upon trains. All efforts to amend the measure were defeated in spite of the railroad employes' organizations and other labor unions.

On April 14th, at Albany, New York, a third hearing on the Spring bill, amending the full crew law, was given by the Senate Public Service Committee. Prominent railway officials declared that the carriers of the State were unnecessarily spending about $1,100,000 a year on account of the present full crew law. They urged the passage of the Spring bill because it places the entire matter in the hands of the Public Service Commission and permits a reduction in the number of crews in certain cases providing the railroads prove to the Commission's satisfaction that such reduction should be made.

In presenting the carriers' case A. H. Smith, president of the New York Central Railroad Company, spoke in part, as follows:

> I am here for the sole purpose of making at your hands a square deal in remedying the conceded wrong which has been done: through the enactment of the statute of 1913. The change that is imperatively required is one which will squarely and fairly place the primary responsibility as to the number of men required on any particular train or class of trains where it belongs, with the managers of the railroads. If that is done, we are then perfectly willing that the judgment of the managers shall be subjected to the revision and discrimination of the properly constituted authorities of the State, the Public Service Commission. This cannot be done by leaving the arbitrary determination to the Legislature as it stands in the law of 1913, and then authorizing the Public Service Commission to reach a conclusion other than that which has been reached by the Legislature, its creator, and at the same time placing the responsibility for the number of men required for safe operation in the first instance on the Public Service Commision, where it does not belong.

Other speakers against the bill were Ira A. Place, vice-president of the New York Central; A. J. Stone, vice-president of the Erie; R. B. Woodward, Rochester Chamber of Commerce; M. C. McInerney, general superintendent, Buffalo, Rochester and Pittsburgh; Charles A. Paulding, counsel, New York Central.

THE KIND OF PUBLIC OWNERSHIP WORTH WHILE

A recent statement issued by the Pennsylvania Railroad strikingly illustrates how extensively the ownership of our transportation agencies is being assumed by the general public. This road at present has 92,459 stockholders, more than half of which live in the States served by the system. Despite the European war, the Pennsylvania Railroad on April first, had 151 more foreign stockholders than it did a year before.

That there is a tendency for the stock of this company to be held widely by small investors, is indicated in the steadily decreasing average holding of shares. On April first, the average holding was 108 shares, or 3.44 shares less than a year ago. The number of women shareholders was 44,545, while their average holding is 63 shares. Discussing this record of the Pennsylvania Railroad, the Chicago *Tribune* on March 27th, had the following editorially to say:

> In public discussion we talk freely of "the railroads," having in mind either soulless legal entities or more or less ruthless and malevolent groups of rich men. We very seldom think of the railroads as properties into which our neighbors, if not ourselves, have put money as an investment, just as we may have put money into a house and lot or an insurance policy.
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> This is natural, for when we think of bad service we direct our thought to the managers, while the public evils developed in the history of American railroad stock manipulation have focused attention upon the piracy of would-be overmen of finance.
>
> When to divert this attention and evade punitive measures malefactors have begged us to think of the stockholder, the legitimate investor, of the widow and the orphan, the response has been, naturally again, a contemptuous laugh.
>
> All the same, the rights and interests of the stockholder should not be forgotten now or at any other time any more than those of the man or woman who has put money honestly in a business, a piece of land, or any other legitimate enterprise.
>
> The Pennsylvania "record" gives the average

holding of women stockholders at 63 shares. As railroad shares are important investments of estates and insurance companies, the livelihood of widows and orphans.

But now we are passing out of the period of exploitation. The fight for public regulation resulted not only in the creation of agencies to protect the interest of the public, or at least of the shipper, but it also educated railroad men in a policy respecting their responsibilities as quasi-public functionaries which is clearing away most of the evils of the public-be-damned era.

Among the omissions of the late Congress was legislation to extend regulation over security issues. Yet railroad financing and financial control are more scrupulous than they have been in some notorious instances in the past, and what is needed now is less talk of evils of the past and more fair consideration of the difficulties of the present. We have to take into account the interests of the shareholder, the employe, the shipper and the general public. In the narrower sense these interests often clash. Underlying them all, however, is a substantial enduring community of interest in what we call "a square deal." To sacrifice the shareholder's interest means to smother investment in railroad enterprise and slowly paralyze our system of transportation to the inevitable injury not merely of the shareholder, but of the whole country and every one in it. To mistreat the employe, to extort from the shipper, each exacts a penalty we all must pay.

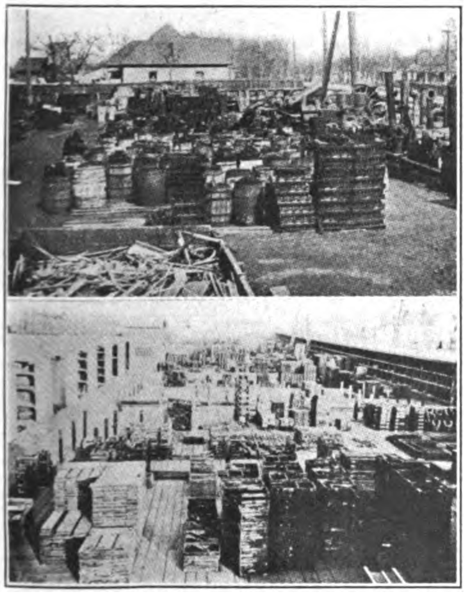
At this time the whole country is suffering with and from the condition of the railroads. It is a time for broad views and the burial of animosities, for fair play and a constructive policy.

Commenting along similar lines, the Philadelphia *Evening Bulletin* of March 27th, stated that:

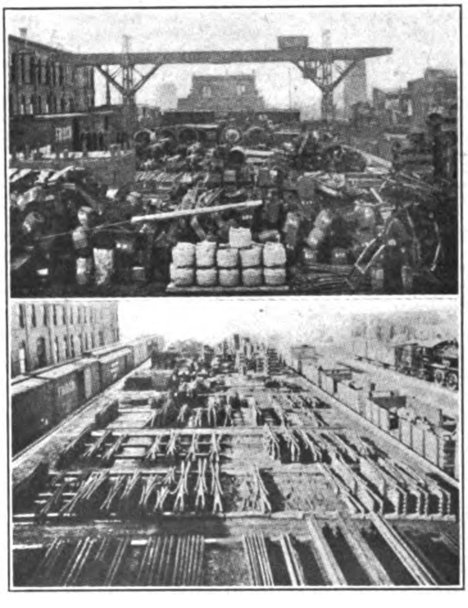
> The former assumption that the period of great organizations of capital controlling industry and commerce would lead surely and immediately to the period of Government ownership and control, seems to be challenged by the course of events. Had the trend of the times, both as regards the conduct of capital and the consequent attitude of the public gone on unchecked, this result might have followed.
>
> But the leaders of capital—at least, the wiser of them—saw the danger and for a number of years have been consistently seeking to decentralize ownership and to encourage popular participation in capitalistic enterprise, with the result that intervening, and postponing, if not finally preventing, the period of government ownership, there is in sight a period of popular investment, which shall be permanent or passing largely as the controlling powers in the great corporations prove faithful or unfaithful to their trust.

OPERATING EFFICIENCY

The hustle and bustle of the daily grind leaves the average citizen little time to appreciate the rapid strides which have been made within recent years in the operating departments of the railroads. The general increase in operating efficiency, however, has been one of the wonders of the age and a day scarcely passes without seeing the establishment of another record which stands almost for perfection in the handling of trains.



Upper Picture Shows Conditions as they Existed at Springfield, Mo., Under East End of Crane Platform before the Improvements were Made as Indicated by Second Photograph.



Portion of East Yard, Springfield, Mo., Upper Picture Showing Material as Previously Stored and Lower Picture Shows Same Yard Properly Arranged and Convenient for Stock Checking. Much Additional Room is also Gained by Having the Material Properly Sorted and Stocked.

A few years ago it was an exception for a freight train to be on time. In fact, in the majority of cases, no real effort was made to follow a set schedule. To-day there are thousands of trains, particularly in the fast freight service, which are not only following a set schedule, but which seldom fail to live up to it.

Take, for example, a recent record of the Baltimore and Ohio. Of three hundred and thirty-six fast freight trains operated by this road from New York, Philadelphia and Baltimore to Chicago, Columbus, Cleveland, Cincinnati and St. Louis, from March 1 to 12 inclusive, only one delay occurred and this was of an unavoidable character. Other roads are producing equally fine results, while it is safe to assume that the regularity of the passenger service is not equalled by any other nation on earth.

These results have only been accomplished by the unflagging zeal and enterprise of the men in the operating departments. To procure them has meant an attention to detail which would stagger the ordinary individual. While the larger employment and the improvement of safety devices have played no small part in the general results, it is after all the men in the service, alert, resourceful and well-disciplined, who are responsible for the present high state of efficiency. If the public could only once fully comprehend the vast difference between the influences which have accomplished these results and those which would be present under bureaucratic methods of government ownership, the latter alternative would be disposed of for all times.

Furthermore, not only is this high standard of effiicency found in connection with the operation of trains, but it has been rapidly extended into all branches of the service until the railway industry as a whole, stands to-day as one of the highest exponents of scientific management in the industrial world. While some departments have been slower than others to feel the influence of this movement, the progress made, in view of the ramifications and complexities of the business, is remarkable.

The photographs on page 283 give views of improvements recently made at the Springfield plants of the St. Louis and San Francisco Railway. The difference, as indicated by these pictures, proves at once attractive to the eye, yet that is but of small moment as compared with the increased efficiency and its correlative, economy which have been gained by keeping things in order and having a place for everything and everything in its place.

Nothing is more significant of the change in railroad operation in the last few years than need for watching details, which for many years were considered not only unnecessary, but more expensive to supervise than the economy of supervision would bring. As the *Frisco Man*, the official organ of the Frisco Lines, recently put it:

> After all, the trinity of a railroad is embodied in the words—energy, efficiency and economy, and everything from safety first, claim prevention and loading the cars heavier, comes under the compass of this trinity.

COURTESY AS AN ASSET

Attention has been called in these columns before to the change in the methods of railway competition. Parallel lines no longer depend upon rate advantages or, to the same extent, upon facilities, to hold or increase their business. To quote from the February issue of the RAILWAY WORLD:

"Competing lines, in many cases, are now so nearly equalized in these particulars that the progressive railway official is looking largely to other influences to hold and increase his patronage. This is evidenced by the constant effort being made to instill into the minds of railway employes the necessity of according the traveler courteous treatment and of showing every possible consideration to the shipping public. Successful railroading, in the future, is going to be based, in no small measure, upon this consideration, and the wise and progressive railway manager has already begun to emphasize the importance of the fullest development of the spirit of service."

Very definite steps are being taken along these lines, as is evidenced by a recent action of the Pennsylvania Railroad. This great system believes that the kind of treatment passengers and shippers receive in the ordinary day-to-day affairs, from those on the railroad with whom they come in contact, largely determines the number of friends made for the railroad that day, and the management, in order to bring this fact home to its employes, held two courtesy meetings in Philadelphia on April 13th, which were attended by the men who actually come in contact with the public in their daily duties. Every employe on the Philadelphia Terminal division, who has any direct dealings of any kind with the public, was instructed to attend these meetings.

These included the assistant station masters, clerks in ticket offices, ticket examiners, ushers, elevator attendants, check men, station patrolmen, telephone operators, cab starters, package, parcel and ladies' room attendants, station porters and clerks, telephone operators and others in freight agents' offices, who come in contact with patrons of the railroad. A number of passenger trainmen of other divisions who run over the Philadelphia Terminal division, also attended the meetings.

PUBLIC EXPRESSIONS BY PROMINENT OFFICIALS

Prominent railway officials continue to discuss publicly the various problems affecting the adadvancement of the industry. While there appears to be a more optimistic feeling than there was a few months ago, there are still many questions of grave import to be settled before the railways can be established on a basis where they can go forward at the rate required by progressive industrial demands.

Mr. A. H. Mohler, president of the Union Pacific Railroad Company, delivered an address at a complimentary dinner given by the Grand Island, Neb., Commercial Club on March 12, 1915. In discussing the relation which existed between general business and the railways, he spoke in part as follows:

> We should all work under the restraining influences of what we feel is for all a judicial condition which is supposed to carefully weigh all the interests of the parties involved, and the justification in the following of peaceable pursuits to the destruction of one interest for the purpose of developing the profit of another, is un-American and unfair.
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> Therefore, when questions of great issue are presented to the public for consideration, they should be examined from the standpoint of justice and equity and not with the feeling that an undue advantage indicates a shrewd business mind.
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> No one can permanently, I believe, prosper under methods that are not endorsed by fair business rules.
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> Therefore, it seems to us that on open and frank statement of conditions as they exist, whether upon the side of the transportation lines, or upon the side of the public, or the patrons of the transportation lines, should be given perfect, open-minded consideration so as to determine upon the facts, and permit the prosperity of both parties to the greatest possible extent as a necessity
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> The transportation lines have been pretty seriously embarrassed, misrepresented, and, I think, it is not an extreme statement to say—persecuted.
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> There are some instances where men who felt they were justified in getting what they called "even," imagining a grievance that was yet of a trivial character, but of momentous importance to them, being placed in positions where they could advocate sham reforms, and which have resulted, undoubtedly, in some instances, in producing results which have been diametrically opposite to the public's interests.
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> The time has arrived, no matter how flippantly some people desire to receive it, when the business interests of this country must give consideration to the important problems of transportation to-day confronting us.
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> It is useless for us to deceive ourselves that prosperity can be produced for one interest and destruction for another, and the country go on with uniform prosperity.
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> The modern requirements of transportation are constantly being augmented by demands of the public The growth of cities requires liberal expenditures for viaducts, paving, taxation, etc., and other accessories.
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> The constantly increasing claims of personal injuries, where we are required to insure property and lives without any limit as to the recovery, are diametrically different from condition of life and fire and accident insurance companies, which can limit their responsibility and obtain a very much higher premium than that which is received by the railroad for the same initial service.
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> Business is measured by its value, and if the value does not exist, the interest of the parties involved rapidly fades away.
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> In the case of the railroads, and I would like now just for a few moments to speak specifically of the Union Pacific Railroad, being fully aware of what your city has done for us, and would like to give you now some specific information as to what the Union Pacific, in the past few years, has done for the city of Grand Island, since my connection with the company in 1904.
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> We need the assistance of you gentlemen to help restore the buying power of railroad properties which are such large consumers of iron, steel, coal, and forest products.
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> When the railroads are in the market freely the business then presents a boom condition. When they retire many industries are curtailing their employes in number; consumption of material supplies is very greatly curtailed; and food supplies are greatly affected, and in which you are directly interested, and to which you produce, to a large extent, in this great State of Nebraska.
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> The railroad company appreciates, and it has some very loyal citizens in this city, the patronage it has received, and when the conditions arise, so that we can, with safety, go on with the necessary improvements, I am sure the officers of this company will gladly do so But please bear in mind to-day that we are giving specific attention to the renewal of our rails, and to the condition of our equipment, which are the safety factors with us—the vital conditions which affect us.
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> The railroads have had many political doctors the past few years until our diseases have been composed of passenger rate fever, freight rate croup, taxation cancer, and general debility.
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> I bespeak in behalf of the offiicals of this com-

pany, our full appreciation of the courtesy which you have extended us this evening, and it inspires us in the belief that the gulf which has heretofore existed between the patrons of the railroad and the public, and the railroad company and its men, is greatly lessened, gradually disappearing, and that a thorough understanding of each other's wants will produce the prosperity which we are so anxious, all of us, to obtain.

Benjamin F. Bush in a recent discussion of the policy of the Missouri railroads in their effort to obtain increased intra-state freight and passenger rates, made public the following statement:

Before applying to the State Legislature for an increase in passenger rates, the Missouri railroads had filed an application for an increase in certain freight rates and tariffs providing for a three-cent intrastate passenger rates were also filed with the Public Service Commission, and this application is still pending, and will be prosecuted to a final conclusion before the Commission.

The railroads had introduced their testimony before the Public Service Commission before the amendment of the public service commission bill was introduced in the Missouri Legislature. This bill sought to revise the entire railroad law of the State in a comprehensive manner, and, as originally introduced, contained a provision re-enacting the two-cent passenger law. This was amended in the Legislature, providing for a three-cent maximum and a 2½-cent passenger rate, to be established by the Legislature at once. It passed the House, with the amendment providing for a physical valuation, and this amendment was voted down in the Senate, and the Legislature then adjourned before the bill was reached on the calendar, so that the majority of the Missouri Legislature really declared in favor of a 2½-cent passenger rate.

Thousands of business men and farmers petitioned the Legislature to increase the rates while this bill was pending, and the fact that the valuation amendment of the House was promptly eliminated by such an emphatic majority in the Senate demonstrates that the majority of the Senate was in sympathy with an increased passenger rate without a physical valuation and would have so voted if the bill had been reached on the calendar.

If a physical valuation is required before the relief is granted, then it would be like medical aid after the death of the patient, because few of the Missouri roads can survive until a physical valuation can be made.

The interstate roads are to be valued by the Interstate Commerce Commission under an act of Congress. It is generally admitted that this will take from eight to ten years, and, Congress having occupied the field, it is doubtful if any of the States will want to interfere or appropriate the hundreds of thousands of dollars necessary to make such physical valuation. We are not afraid of a physical valuation, because we know that the physical value of the Missouri roads is much greater than the aggregate stock and bonds on the roads and when the intrastate passenger earnings of a majority of the Missouri roads are less than the expenditures and, as the report of the Commission to the Legislature shows, six per cent on a valuation of only $3,333 per mile upon the 6,000 miles of Missouri railroads can be earned on the present income, it is idle to talk of the valuation as a condition precedent to granting the Missouri railroads relief

While the bill was pending in the Legislature the Public Service Commission made a report to the Legislature, which clearly showed the necessity of the Missouri roads for increased passenger and freight rates, the decrease in earnings of all the Missouri roads since the enactment of the maximum freight and passenger rate law clearing establishing the fairness of the preset application.

While the Legislature was in session the Public Service Commission of Massachusetts, after a full and fair hearing, increased the passenger rates on the New York, New Haven and Hartford road from 2 to 2½ cents a mile. The passenger earnings of the Massachusetts roads the past year averaged about six times as much revenue per mile as the average Missouri roads, and the population is about six times as dense as in Missouri, so it stands to reason that if the Massachusetts roads are entitled to 2½ cents a mile the Missouri roads, for much stronger reasons are entitled to 2½ cents a mile.

I understand some question has been raised as to the power of the Commission to increase the statutory rates, but during the session of the Legislature the attorney general of the State rendered an opinion to the Legislature that the Commission had power to increase the rates, and I understand the latest decision of the Supreme Court of the State recognizes the authority of the Commission to increase the rates. The fact that section 48 of the Missouri Public Service Commission law is an exact transcript of the Federal act of 1910, under which the Interstate Commerce Commision has recently granted the Eastern roads increased rates, would seem to put beyond all question the right of the Missouri Commission to grant the same relief under the same kind of a statute.

We have every reason to believe that the Missouri Commission will take a broad view of the case now pending before it, and, in view of the changed sentiment throughout the State and the country generally toward the railroads, that we shall realize the increase to which we are so justly entitled.

The increases asked in freight rates in the Missouri case are only as to certain commodities upon which the freight rates are out of all proportion to the just cost of transportation. If the increases prayed for are granted by the Commission, they will only amount to a few thousands of dollars a year increase to each of the railroads of the State, and it will not by any means furnish the full measure of relief to which the railroads are entitled. So far, the case made by the railroads has not been overcome by those who are opposing the increase in rates; and, as stated, we have every reason to believe that we shall receive fair treatment at the hands of the Missouri Public Service Commission.

R. S. Lovett, chairman of the Union Pacific Executive Committee, recently publicly discussed the Western Pacific and the chance of it being taken over by the State of California and the effect of such a development upon the general rate situation. He said in part:

> I would like to see the State of California take over the Western Pacific. If they made this move they could not operate the road on its present basis any more successfully than the private interests that have controlled it. The Western Pacific has not been a success, as everybody knows, and the only way it could be made a success under State ownership would be to increase rates. If rates are increased over the Western Pacific they must be increased over the other roads so that we would have no reason to regret this development.

In the annual report of the Delaware and Hudson Company made public during the early part of April, President L. F. Loree calls attention to the problems confronting the carriers in their efforts to procure sufficient capital to continue necessary developments. He said:

> Public attention can not be too forcibly directed to the increasing difficulties under which the most solvent railways must compete for the capital necessary for their continued development to keep pace with the forward strides of general industry. So far as this competition is with States and municipalities, it has recently become more intense by reason of the advancing rates offered and the freedom of such investment from the Federal income tax and the inquisitorial features attending its enforcement while, so far as it is with manufacturing or industrial corporations, the same effect has sprung from the longer establishment and enhanced stability of the issuing corporations. The public offerings of State and municipal bonds, exclusive of those taken for the sinking fund of New York City, increased from $143.590.868 in 1902, to $383.150.828 in 1912, and the aggregate annual issue of such bonds paying four per cent or higher increased during the same period from less than $60.000.000 to substantially $380.000.000. Not only do these issues compete with those of railways for the share of the limited investment fund required by the latter, but the augmented governmental activities that they suggest, tend to increase the general burdens of taxation, of which so disproportionately large a share is invariably imposed upon the railways.
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> It is not surprising, therefore, that from 1902 to 1914 the annual taxes paid by American railways increased from $54.465.437 to $157.371.100. Many however, may not have realized that in 1914 the various taxing authorities demanded and collected $38.26 out of every $100 which the railways had left out of their operating gross receipts after the payment of wages, other operating expenses and interest on indebtedness, as against $15.92 out of every $100 in 1902, or that in the later year the railways paid $2.39 in taxes for every dollar which they paid twelve years earlier. Especially in view of the drain upon the world's resources that is attending the great European war and that is likely to continue long after that war has closed, these facts ought to receive earnest thought. They indicate a great necessity and a great opportunity for unselfish, unprejudiced and constructive statesmanship.

As throwing additional light upon the labor situation as it affects the railways, a recent statement by R. Lancaster Williams, president of the Georgia and Florida Railway, is of interest. He says:

> I regret extremely it has finally been necessary for the Georgia and Florida Railway to seek the protection of the court, but under the circumstances there was no other way to bring about a proper adjustment of the situation. When I was elected president about three years ago I hoped to bring about the development of its business and such a rearrangement of its securities as would be necessary without a receivership.
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> The receivership might have been avoided had it not been for the general depression in business resulting from the European war and that the constant demands of the labor unions throttled the proposition just at the time it seemed to be commencing to make good. A short while prior to my election as president and at a very critical time in the company's development there was a disastrous strike, which completely tied up the road, and, although the property has never recovered from that trouble, there has hardly been a month up to the present time when there have been before the officers of the company burdensome labor problems and demands for increase in wages and exactions of one sort or another. The public does not realize to what extent the railroads have to submit to the dictates of the Brotherhood of Engineers and Firemen.
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> Already the highest paid skilled labor, they are never satisfied. There are instances on the Georgia and Florida where engineers have earned 40 per cent to 50 per cent more per month than the superintendent to whom they reported. Some day there will have to be a reckoning with organized labor, or rather with the leaders responsible for the conditions such as I have described, and when that day comes the public must either demand fair play for the railroads or share in the cares which must come from continued demands and exactions from that source. Every man should be paid a reasonable wage, but there is a limit to what a railroad can pay and remain solvent, and this limit is not far off with many of the railroads of the country.
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> It will not do to blame the European war altogether for the depression in business and the troubles of thes railroads, but also the combined influences of unreasonable labor demands and the actions of the Interstate Commerce Commission in the past. The great depression which has been existing so long in the lumber market, caused largely by the treatment of the railroads by the Commission, and the almost universal restraint of trade resulting from its inaction, seriously affected the company's revenue, although it was not an applicant for the five per cent rate increase. When the Commission finally announced its decision in the Eastern rate case the conditions were already set up by the developments abroad and the general anxiety throughout the world, so that the good which might have been accomplished by a more prompt decision was nullified, so far as any restoration of confidence in the minds of the public or the railroads was concerned.

PROGRESS IN "BUY IT NOW" CAMPAIGN

Attention was called in last month's issue of the RAILWAY WORLD to the co-operation which railroads are lending to the "Buy it Now" campaign, started a short time ago for the purpose of relieving present depressed business conditions.

This movement has gained many adherents among railway officials, and a systematic movement is being made to spread its influence. Recently circulars have been sent out by a number of roads to their representatives and agents, urging their cooperation in the general campaign, and some roads have gone so far as to feature it in their March time tables or in their monthly bulletins and employes' magazines.

As an indication of how some roads are assisting in the general movement, the following circulars sent to the agents and representatives of the Wabash Railroad, the Rock Island Lines and the Missouri, Kansas and Texas Railway, are of interest:

Circular sent to agents and representatives of Wabash Railroad:

As you have undoubtedly noticed, a vigorous campaign is being conducted through the Associated Press, Farm Journals and other public channels, to create interest in a movement to "Buy it Now,"—that is, to urge the purchase of goods and material now which must, of necessity be purchased in the very near future, and as commercial conditions throughout the country generally respond very promptly to any encouraging developments, we solicit your active and enthusiastic co-operation in the effort to arouse public interest in the "Buy it Now" campaign.

The campaign is general in character, but as the farmers of the United States are more prosperous to-day than ever in their history, it is particularly directed to them.

We are all interested in this matter and should lend it our energetic and enthusiastic support through our daily contact with the public. If successful, the result of a movement of this sort will be manifold.

A large amount of money will be put into immediate circulation.

Employment will be provided for many people now out of work.

Full time forces will be employed in many factories, etc., etc.

Many factories now closed will be reopened.

We should all assume a share of the responsibility in the effort to accomplish results. Business generally will be stimulated, which will reflect itself in every line of industry.

Circular sent to commercial representatives of Rock Island Lines:

The tendency of commercial conditions throughout the country to respond promptly to any encouraging developments prompts us to invite your attention to the good results that may be accomplished by creating with the public generally, active co-operation in the effort to arouse interest in the "Buy it Now" campaign which is being conducted through various public channels. The purpose of the campaign is to urge the *buying of goods now* which of necessity must be bought during the spring months. While the campaign is general in character, it is particularly directed to the farmers of the United States, who are more prosperous to-day than they have ever been in their history. The results of the campaign, if successful, will be manifold. It would put large amounts of money into immediate circulation, would permit the runing of factories full time force is employed, would permit all lines of business to increase their output, would serve to provide employment for many men who are now out of work and whose families are actually dependent,—in fact it would stimulate business generally, which would be reflected in every line of industry.

We are all interested in this matter and should actively lend our aid to the work in an enthusiastic manner as may be afforded by our direct contact with people who are engaged in commercial affairs.

This campaign has the supoprt of the Associated Press, Farm Journals and other publications, and the tremendous influence of a widespread interest in the work is apparent but all of us should assume a share of the responsibility in the effort to accomplish results.

Circular sent to all agents of Missouri, Kansas and Texas Railway:

You have doubtless kept informed of the campaign being conducted by the "Buy it Now" committee which has headquarters in Omaha, Neb., Chicago, Ill., Kansas City, Mo., Minneapolis, Minn., Indianapolis, Ind., Des Moines, Iowa, Racine, Wisconsin, and Topeka, Kansas. This move has the endorsement of President Wilson in the following words:

"If you are going to buy it buy it now. That is a perfectly safe maxim to act upon. It is just as safe to buy it now as it ever will be, and if you start to buying, there will be no end to it—and you will be a seller as well as a buyer."

You, of course, appreciate the interest that the railroads have in the promotion of this effort and the prompt response of commercial conditions to the general adoption of such a move.

A big effort is being made through the press, magazines, railroads, states, municipalities and counties, as well as through educational institutions and the various departments of the Government to forward this move.

We desire to lend our aid and you are requested to actively and enthusiastically, in your contact with the public, ecourage this thought. The results, if successful, will have a far reaching effect, placing large amounts of money into circulation, providing employment for many men out of work and a general stimulation of business.

CAR DEMURRAGE FROM A FARMER'S POINT OF VIEW

Because a shortage of freight cars may, at certain seasons, mean to the farmer a total loss of his year's labor, the importance of his insisting upon more stringent regulations to prevent the unnecessary detention of cars by shippers is pointed out in a new publication of the Department of Agriculture, entitled "Demurrage Information for Farmers."

At the present time some of the State demurrage codes contain provisions apparently designed to give the farmer special concessions. Such privileges, says the bulletin, are far from being a real advantage. The man who is backward in loading or unloading the freight car he has ordered contributes just that much to increase the shortage throughout the country, from which the farmer is likely to suffer more than any other business man. If the farmer is willing to waive all concessions made in his favor, he is in a better position to demand the abolition of all concessions made in favor of others. This, the bulletin points out, is the best way of minimizing car detention and the evils that arise from it.

At the present time a code of National Car Demurrage Rules is applied on interstate business throughout practically the entire United States, and on intrastate business in twenty-four of the States. In its broadest outlines, this code entitles the railroads to collect from shippers $1 a day for each car that they keep waiting after the lapse of a certain specified "free time." Ever since the railroads first began in 1887 to collect demurrage, this charge has met with considerable opposition from business interests throughout the country. As a matter of fact, says the bulletin, it is the business interests that benefit the most by it. The railroads would gladly forego the insignificant revenue that this charge brings in to them if they could obtain, in return, the immediate release of their cars. From the shipper's point of view, the unnecessary detention of one car by one man helps to increase the difficulty that all the others experience in securing proper transportation facilities. From this point of view, therefore, the demurrage charge is really a fine imposed by the community for its own protection against business selfishness.

In the great majority of instances in which cars are not unloaded promptly, the delay arises simply from the fact that the shipper is deliberately using the freight car as a storage warehouse. The economic waste in this is obvious. The ordinary storage warehouse does not have to be equipped with automatic couplers and air brakes for which somebody has to pay, and which earn nothing while they are lying idle. If, therefore, shippers persist in wasting the earning capacity of this valuable equipment, they should be made to pay for the waste themselves and not pass the burden on to the rest of the community. As has been said, it is usually possible to load and unload a car within a reasonable time, and there is no reason why the whole community should pay the storage bills for any one individual shipper.

The farmer, who of course, ships much more than he receives, is interested in the matter because a freight car cannot be used as a warehouse and as a means of transportation at the same time. If it is held up on a siding until it suits the convenience of the man to whom it has been consigned to unload his goods, it is not available for the transportation of perishable produce from the farms. For this reason the bulletin favors demurrage charges so high that the use of freight cars for storage purposes will be clearly unprofitable. Such a condition of affairs, it says, will materially reduce the ground for complaints of shortage in cars. Obviously, however, if the farmer is to benefit in this way he must do his part by refraining from expecting special concessions in the loading of cars.

Contemporary Opinion

Eleventh Hour Law May Increase Freight Rates.

(From "Greater New York," Official Organ of Merchants' Association of New York.)

ONE of the closing acts of the Sixty-third Congress was the passage of an Amendment to the Interstate Commerce Law which will have the effect of prohibiting a carrier to which property is delivered for transportation from limiting its liability for full actual loss, damage or injury to such property, caused by it, or by connecting common carriers when transported on a through bill of lading, notwithstanding any limitation of liability or amount of recovery or any representation or agreement as to value in any receipt or bill of lading, or in any contract, rule or regulation, or in any tariff filed with the Interstate Commerce Commission.

The amendment, however, provides that "if the goods are hidden from view by wrapping, boxing, or other means, and the carrier is not notified as to the character of the goods, the carrier may require the shipper to specifically state in writing the value of the goods, and the carrier shall not be liable beyond the amount so specifically stated, in which case the Interstate Commerce Commission may establish and maintain rates for transportation, dependent upon the value of the property shipped as specifically stated in writing by the shipper; such rates to be published as are other rate schedules."

There is a wide diversity of opinion as to the probable effect of this legislation. It must, however, be admitted that compliance with its terms makes possible a very material advance in the transportation charges which shippers have been accustomed to pay upon freight where the rates have not been based upon an actual or declared value.

The uncertainty of the situation lies in the fact that there is now in effect two sets of rates, one subject to "common carriers liability" and the other subject to the limited liability provided for in the carriers' bill of lading.

The rate which is provided and under which the carrier will assume common carriers' liability, is ten per cent higher than the limited liability rating.

Under a strict application of the law, as the carrier may not limit its liability, the existing rates based upon a limitation of liability would become null and void, and automatically the existing rate based upon the common carriers' liability would become the legal rate.

As probably over 95 per cent of shippers' transactions are undoubtedly handled under the limited liability provided for in the uniform bill of lading, the rates not being based upon a specific value, it is possible on this 95 per cent of the traffic the rates subject to common carriers' liability would be applicable and the shipper would be required to pay a ten per cent advance without securing any material increase in the responsibility of the carrier.

It is the contention of the shippers that as the present rates are based upon value, bulk, destiny of traffic and risk of carriage, there should be no increase in such rates, even though they are made subject to common carriers' liability.

The administration of the law is under the jurisdiction of the Interstate Commerce Commission, and it is expected an early announcement will be made of the revision of the tariffs and bill of lading which will be required under this new amendment to the Interstate Commerce Act.

More Conspiracy.

(From "American Industries.")

WHEN the Ship Purchase Bill died in the closing hours of the Sixty-third Congress the sponsors of the measure were not content to permit the remains to rest in peace. The Senate appointed a committee to investigate the influences which brought about the defeat of the measure, it being freely mooted that shipping interests had actively lobbied against it. Just what advantage is to be derived by the people and Government of the United States from the investigation is not apparent. The legislation having failed to pass the upper house of Congress, what possible benefits can be derived from an attempt to materialize the illusions of its disgruntled advocates?

This is not the first time during the present administration that similar investigations have been made. Whenever strong opposition has appeared in either house of Congress against an administration measure murmurings have been heard of "insidious lobbyists" and "conspiracy." When the Underwood-Simmons Tariff bill was being shaped in the early days of the administration the National Association of Manufacturers was haled to Washington with books and papers and investigated, fruitlessly, on charges of improper conduct in the Nation's capital. Then again, last June, when the anti-business program of the Administration was up for consideration, charges were made that there was a conspiracy of "interests" to have Congress adjourn before taking action on the measures which had been proposed. The "Commoner," Lincoln, Neb., William Jennings Bryan, publisher, informed the world that "the 'favored few' are bringing pressure on your Senators to adjourn Congress without passing the anti-trust bills." Letters which had been received in Washington from business men were pointed to as evidence of a conspiracy on the part of "big business" to block the anti-trust legislation, which, incidentally, was almost universally condemned. Now comes the shipping bill inquiry. This time newspapers as well as business is under the suspicion of the inquisition, and the New York "Times" was called upon to explain its editorial attitude in opposition to the ship bill. The testimony of its managing editor and editor in reply to the questions of members of the committee demonstrate the absurdity of the entire investigation.

A Parcel Post Incident.

(From "Concerning Municipal Ownership.")

IN view of the jubilantly optimistic reports of Postmaster-General Burleson both as to the advantage of turning the telephone and telegraph into post office bureaus and the gratifying surplus that the Post Office Department has been able to achieve under his administration, the following letter, addressed to the Editor of "Publishers' Weekly" is not only amusing but highly instructive:

May we call your attention to what seems to us an instance of Post Office red-tape-ism run mad, which would be humorous if it were not so exasperating. It may be of interest to other members of the trade, who, like ourselves, have been led by the roseate reports of the Postmaster-General into the fond delusion that the United States Parcel Post affords not only a reasonable but, through its insurance provision, a safe means of transmitting merchandise.

In June last we mailed a large quantity of identical parcels to various points in the United States, insuring them all at a stated value of $6 each. Two of these parcels were lost by the Post Office Department and have not yet been recovered.

The following is the history of the case to date, seriatim: In September, 1914, we learned that neither of these parcels had been received by the addressees and made inquiry, by letter, at the mailing office, one of the branch station offices in this city. We were asked to fill out a voluminous complaint form, No. 1510 if our memory serves us, a form, by the way, which had no special relation to insured packages and asked, as a result, a considerable number of entirely irrelevant questions. Some weeks later we received due notification that, although careful search had been made, "the investigation, thus far, has discovered no irregularity in the service to which the loss can be ascribed. The facts in the case, however, shall be reported to the Post Office Inspector in charge of the division at New York for continuation of the investigation and it is possible the cause of non-delivery will yet be ascertained or the article recovered." Nothing was said about paying the insurance indemnity.

Having waited several months and received no further word from the Post Office authorities, we, on December 24th, wrote a follow-up letter of inquiry. We received promptly two copies of our old friend form No. 1510, which we were requested to fill out as before. We thereupon wrote that we had already, some months previously, filled out this form and that we had been told to wait the result of further investigation and politely hinted that the parcels had been insured and we labored under the impression that we had something coming to us.

Receiving no answer to this letter, we wrote again on January 7th, to which also we received no answer except that we were advised verbally that the branch station "had done all they could" and "that they thought that we could get more satisfaction by application to the Post Office Department at Washington." We thereupon wrote a letter describing the circumstances of our case to the Post Office Department at Washington, D. C., and shortly after received a courteous two-page letter stating that we should make application to the mailing office for still another copy of our old friend form No. 1510, which we should fill out, and should "at the same time request to be supplied with copies of form No. 3812 and instructions as to their execution, if you desire to file claims for indemnity covering the loss of the two insured parcels referred to."

Having by this time expended time and energy considerably in excess of the value of the original parcels, we were naturally getting rather anxious to secure that indemnity. In an unlucky moment, therefore, we rashly sent for copies of form No. 3812. As we fear that our description will hardly do full justice to it we are sending it to you herewith.

It is needless to say that we have now despaired of securing our insurance, but feel that at least our experience may warn other members of the trade. "Exasperated."

It might be added that it was not sheer disgust at the transaction that impelled this correspondent to give up his attempt to collect his insurance. A careful reading of Form 3812 discloses that the government had set up a "Statute of Limitations" against him. One clause of the Form reads: "No indemnity will be paid for a lost insured parcel 1, unless application is made within six months from the date of mailing." A reference to the correspondent's dates will show that when, after several months of correspondence and delay, he had succeeded in obtaining the proper "form" on which to make his "application" for indemnity, the six months' period specified had just expired, and the insurance paid for in good faith by him, had, by dictum of the Post Office Department, become void. No wonder he signs himself "Exasperated."

State Ownership of a Railroad.

(From the "Philadelphia Press.")

THERE is a movement in California to have the State purchase the Western Pacific Railroad for $50,000,000, the amount of the first mortgage bonds. This would wipe out any equity in the property which may be possessed by the owners of $25,000,000 of second mortgage bonds or of the $75,000,000 of stock.

This railroad, built by George Gould, is in the hands of receivers. It extends 915 miles from San Francisco to Salt Lake City, Utah, and the claim is made that Californians need this road in order to make them independent of the other carriers. The other transportation companies referred to include the Southern Pacific, which extends the entire length of the State and continues eastward to New Orleans, from which point steamships are operated to New York. The Southern Pacific controls the Central Pacific, which extends from San Francisco to Ogden, making direct communication with the Union Pacific. The Union Pacific also gets to the California coast over the San Pedro, Los Angeles & Salt Lake Railway. In addition, California is served by the Atchison, Topeka & Santa Fe, a system of nearly eleven thousand miles, which puts important points in California in direct touch with the Gulf of Mexico and Chicago. Thus besides the Western Pacific, California is served by three great railroads. Moreover, the California ports have been put in touch with the Atlantic coast and all the important harbors of Europe by the expenditure of four hundred millions of dollars by the Federal Government upon the construction of the Panama Canal. And still the clamor of Californians is for independence of the transportation interests.

If with its present wonderful shipping facilities California's needs are not supplied it is very doubtful if they could be better served through public ownership.

What California needs is an appreciation of services already rendered and a proper and just regulation of the existing systems. The logical purchaser of the Western Pacific is the Union Pacific. With the Western Pacific and Central Pacific competing for traffic under State supervision, California's interests ought to be well protected.

Days of Hope for Business.

(From the "New York Sun.")

HAS the country come to the end of the era of destructiveness illustrated by the prolonged political oppression of the railroads? Has a period of constructiveness and profitable opportunity for the employment of capital in railroad enterprises begun? A closely connected series of events in recent months and some continuing developments suggest it.

No great change is effected in the political conditions of business in the country unless there is some change in public opinion. For years the most fruitful efforts of politics have been devoted to the establishment of an extreme control over the railroad system, and endeavors in this direction have won and held public aproval. Is it not now apparent, however, that, control having been established, it is the public desire that regulation of the railroads should cease from excessive assertions of authority which, long before the European war, were contributing more than any other factor to the slowing up of American trade and industry and the contraction of prosperous activities?

What else than a great and far reaching change in public attitudes toward the railroads did Oscar W. Underwood express before the Sphinx Club on Tuesday night? The whole tone of his address was a recognition of the vast importance of the railroad problem to the country's welfare and a clear indication of the proper lines of its solution.

The nature of his speech is sufficiently suggested by these extracts:

"As the public in the end must pay the bill they are primarily interested in the railroads securing the money needed for their maintenance and development at reasonable rates, and equally interested in seeing that it is wisely expended. * * * Low rates and adequate facilities are demanded by the public, but the granting of one is often the denial of the other. * * * The price of new facilities must always be the acquisition of new capital from some source. Without new railroad facilities our commerce cannot expand beyond our present limitations."

Mr. Underwood's is not the only voice through which the country has been learning emphatically that an end of political embarrassment of the railroads has been reached. Otherwise railroad managements would not be encouraged to seek in this and other States the repeal of such measures of oppression as the full crew laws. The popular vote in Missouri against a law of that sort was an unmistakable token of the new public disposition toward the common carriers.

What but evidence of a public opinion more favorable to the railroads was furnished by the revised decision of the Interstate Commerce Commission in the Intermountain cases and more especially the decision handed down last December in the Eastern rate case? After four years of argument and after two rulings almost totally adverse to the Eastern railroads, the Commission reversed itself completely and inaugurated a new public policy of practical support for the railroads by granting very nearly the full horizontal increases in freight rates for which application had been made. A case to all intents identical is now being presented to the Commission by the Western railroads, and it will be an occasion for surprise if the outcome is not similar.

Going still higher in the search for the state of public sentiment, there is the lengthening chain of railroad decisions which the Supreme Court has rendered in the last two years, beginning with the so-called Minnesota cases. Their tendency has been steadily to relieve the railroads from the conflicts between State and Federal jurisdictions. The paramountcy of Federal authority is being demonstrated and at the same time a doctrine of reasonableness in regulation is being judicially enunciated for the guidance of the Interstate Commerce Commission that cannot fail to stimulate railroad investment, with its corollary of general benefit.

In the West Virginia and North Dakota rate cases passed upon by the Supreme Court, this doctrine was many times summarized in the phrase "substantial compensation." While the opinion of the court did not undertake an explicit definition of the doctrine, it was applied with a breadth which is removing all doubts as to what must be the test of reasonableness in regulating railroad charges. They cannot, with the court's consent, be reduced below a point of profitable yield which would require the exercise of Government compulsion to maintain service for the public.

A survey of recent events conduces to the belief that incentives for a fresh period of railroad expansion are coming into existence. Considering, then, the part which railroad extension and the increasing provision of railroad facilities have always played in our general business movement, the advent of days of hope for the railroads has a large significance. It is the dawn of hope for general business recovery and an eventual restoration of general prosperity.

Carriers' Liability for Damage.

(From the New York "Journal of Commerce.")

A NEW difficulty for interstate carriers, which the Interstate Commerce Commission is called upon to adjust, has been raised by the Cummins amendment to the Interstate Commerce act, forbidding any limitation by agreement of liability for damage to goods carried. This applies to express companies as well as railroads, and quite an array of counsel for the companies, the roads and the shippers has appeared for the hearing before the Commission. A practice had grown up of organizing forwarding companies to make shipments by railroad for their customers. For a percentage payment these forwarders would asume the liability for damage to the owners of the goods shipped, thus relieving the carriers to whom they paid the regular rates for transportation.

This relief from damage liability was construed as equivalent to a rebate in freight charges, though the shippers paid and the carriers received no higher or lower rates on actual shipments. The railroads did in point of fact pay to the forwarding companies a commission out of their earnings for assuming the liability and paying damage claims. The question is whether their rates were made lower on that account, thus making a discrimination between those who shipped individually and those who shipped through forwarders. These organized and made better terms in settling claims thereby shipping agents may have exercised more care legitimately earning their commission, and it may have been a benefit all around, or it may have been an injury for some and a gain for others.

The change in the law makes the carriers directly responsible for all damages due to their negligence or fault to the full amount that may be proved against them. It has been assumed that they may be entitled to increase their rates as the result of the change in the law, because the risk of damage payments will be greater. No such intention had been avowed and apparently the matter was to be left to the test of experience and new adjustment of rates if found necessary. Arrangement, however, has been made for the Interstate Commission to hear representatives of the interests involved, including railroads, express companies and associations of shipping interests, and determine what adjustment of rates may be made as the result of unrestricted liability. It may be well to have the question settled, but it involves the difficulty of this whole rate-fixing scheme that nobody can tell beforehand just what the effect of a change will be until it is tried.

What is a Railroad Ship?

(From the "New York Commercial.")

OPINIONS differ regarding the best way to build up our merchant marine, but nobody denies that we need more and better steamships to carry our trade on the high seas. Congress very carefully discouraged our railroad interests from going into the business when the regulations for operating the Panama Canal were settled and now we are to have an investigation of the ownership of two of the finest vessels that fly the flag of this country because they were built by railroad interests. One of them, the Great Northern, passed through the Panama Canal last February with a large number of passengers from Philadelphia to Pacific Coast points and its right to passage was challenged and finally referred to the Interstate Commerce Commission. As the vessel may be fined five thousand dollars a day, the penalty may amount to several hundred thousand dollars.

These two boats, the sister ship being the Northern Pacific are owned by the Great Northern Pacific Steamship Company in which James J. Hill and his associates are supposed to have large interests. As the same men own stocks and bonds of the Great Northern and Northern Pacific railroads, the Interstate Commerce Commission is asked to decide whether or not the boats are controlled by railroad interests in violation of the absurd law passed to throttle shipbuilding by those most likely to do something to build up our merchant marine.

The Canadian Pacific Railway owned fleets of steamers that sail the Atlantic and Pacific Oceans and the Great Lakes. These vessels have been transferred to an English company in which the railway company owns stock enough to control. This was done to get around our Panama Canal regulations and we cannot bar out these old Canadian Pacific boats without getting into trouble. They will therefore enjoy privileges of which we are trying to deprive the Hill interests. Treaty obligations compel us to treat all vessels alike in the Panama Canal. We cannot favor our coast-wise traffic for this reason, but no treaty compels us to discriminate against it by fining a ship five thousand dollars a day. The absurdity of anti-corporation laws now stands out in bold relief, for it threatens to curtail the receipts of the two Panama Canal Exhibitions now open on the Pacific Coast. It is to be hoped that the Interstate Commerce Commission will decide this case promptly. If the ship owners win they can go ahead, and if they lose the public will be able to judge the folly of such laws.

The American Commerce Association

Note.—The following paragraphs deal with a new national association of traffic men which has recently been organized at Chicago. The object of the organization is to set standards of efficiency for employers and employes, as it is believed that the present tremendous waste of time and money in traffic work, demands employment of trained men. The "Railway World" is in entire sympathy with this movement, as it believes it will not only develop more harmonious relations between those who employ and those who operate the railways, but will serve to more fully inform the business men of the country regarding rate matters and thus enable them to more intelligently and economically employ our transportation agencies. In the future there will be a new department in the "Railway World" devoted to the traffic efficiency clubs of this Association, located in the various cities of the country. Under this heading practical railroad and industrial traffic matters will be discussed.

Omaha Traffic Efficiency Club Meetings.

THE Traffic Efficiency Club meetings for the month of March, were held on the second and fourth Tuesdays. At the first March meeting, President Westcott read a paper on the origin of Classification Territories. He presented his subject in a very clear and interesting manner and the information gained by the club will assist them materially in their future discussions.

Mr. E. C. Wilbur, Traffic Manager of M. E. Smith & Company, gave a talk on: "Trap Car Service."

In order to catch up with the regular program the Club is trying to finish two programs in one meeting night. Mr. W. W. Drummond, of the Illinois Central Railroad was a welcome visitor and will probably give the club a practical traffic talk on matters coming up in his daily experience at some future meeting.

There was a good attendance at the second monthly meeting of the Club, at which Mr. G. A. Davies presented an interesting paper on the origin of the Western Classification Territory. Mr. R. M. Schuyler, Chief Rate Clerk of the Missouri Pacific Railroad, also gave the members an interesting talk.

The Lincoln Traffic Club Meetings.

Both of the monthly meetings of the Traffic Efficiency Clubs here were well attended. The regular program as outlined by the American Commerce Association was followed and furnished valuable items for practical discussion. The officers of the Club are: C. H. Dean, president; L. A. Watts, vice-president; Jos. Pacal, treasurer; and J. W. Cheuvront, secretary.

The Club meets on the second and fourth Thursdays of each month at the Commercial Club Rooms and members of other Traffic Efficiency Clubs or the American Commerce Association are cordially invited.

Chicago Traffic Efficiency Club Meetings.

The Chicago Traffic Efficiency Club Meetings have been held regularly in the Club Rooms of the Great Northern Hotel on first and third Thursday evenings of the month. At the first monthly meeting an Interstate Classification Case was presented in accordance with the regular program prescribed by the A. C. A. At the second meeting an interesting discussion was given on the subject: "Efficient Methods for Handling Claims."

Mr. C. H. Anderson, Traffic Manager of the Manhattan Electric Company, led the discussion, pointing out a number of important points relative to the handling of freight claims from the industrial point of view, after which Mr. U. B. Squiers, Claim Investigator, Chicago, Milwaukee & Gary Railway, continued the discussion outlining efficiency methods used by railroads in handling claims filed by shippers. A portion of Mr. Squiers' remarks is as follows:

"Efficiency is one of the tests by which we to-day set our standards. That this is lacking. in the adjustment of freight claims, on the part of the carrier, appears to be the popular idea on the part of a large majority of the shipping public to-day. This opinion is not without merit for the reason that no amount of efficiency or effort can relieve the roads of a certain amount of delay due to the character of the information necessary and the wide area from which it must be secured.

"It must be borne in mind that where a commercial house finds its records in a more or less compact form, easy of access, and subject to the personal attention of the investigator, that on the other hand, a carrier must conduct its investigation by correspondence, that records are often separated by long distances, and that oftentimes, information is withheld which would be of much value.

"Space will not permit going into details in illustrating this point. It is sufficient to say that, given the documents which should support every claim, namely: original bill of lading, paid freight bill, certified copy of invoice, claimant's bill, and copies of all correspondence, pertaining to a carrier's contract of shipment, the carrier's methods under the present system, coupled with their ever increasing efficiency, will have a marked tendency to alleviate the popular criticism.

"Much of the dissatisfaction which the shipping public feels is due to the lack of efficiency is the result of a lack of knowledge of the transportation problem. This is not surprising when we consider that only the larger commercial industries have so far secured the services of men who are entirely familiar with this problem. Co-operation coupled with a clear understanding of the service involved will help greatly in relieving this difficult situation."

St. Louis Traffic Efficiency Club Meetings.

The meetings of the Traffic Efficiency Club in St. Louis have been held regularly and the program as outlined in the Club Constitution has been followed: At the first meeting Mr. Wm. T. Day, T. M., Mallinckrodt Chemical Works, gave a very interesting talk on efficiency which was enjoyed by all and at the last meeting, Mr. F. H. Behring, A. G. F. A., Southern Railroad, gave the boys a good talk on "Traffic Efficiency."

American Commerce Association Notes.

The American Commerce Association has moved into larger quarters and will now be found located at 732-734, 736-738 The Rookery, 207 South LaSalle Street. Among the added facilities which have been installed for taking care of the rapidly increasing work of the Association, a large tariff file of 300 sections has been secured for the Consultation Department, which is under the direction of Mr. Thomas D. Fitzgerald, formerly with the Chicago & Alton Railroad.

As the work of the Association is strictly educational aiming for higher Traffic Efficiency, and for all that is best in traffic work, none of the facilities of the Association's Consultation Department may be used for freight bill auditing or rate adjustment cases.

It has been suggested that members of the Traffic Efficiency Clubs will find an outline of practically all the subjects in the National Club Program, prescribed by the Association in Traffic Efficiency Docket No. 20, and that they will derive the greatest benefits from the club work by compiling as much information as possible on each item in the program before the regular monthly meetings. The National Program for the Traffic Efficiency Clubs for the month of April is as follows:

Program—April 1st.

32 Industrial Railroads—Speaker to be selected.
33 Application of Tariffs between and from points in the Central Freight Association Territory to Interstate Points. (See Docket—Page 39.)
34 Publicity and Legislative Committee Report.
35 The Work of the Interstate Commerce Commission.—Speaker to be selected.

Program—April 15th.

36 Traffic Department Efficiency.—Speaker to be selected.
37 Application of Tariffs between Points in Illinois, Upper Peninsula of Michigan, Iowa, Minnesota and Wisconsin, and other Interstate Points. (See Docket—Page 45.)
38 Moot Interstate Commerce Commission Case.
39 Question Box Committee Report.

The Railroads and the Public

NOTE: On March 22d, Mr. Daniel Willard, president of the Baltimore and Ohio Railroad, addressed the students of Dartmouth College, Hanover, N. H., on the above subject. After presenting a brief historical record of the beginning of the steam railroad and its growth in the United States, he spoke as follows regarding the relations which now exist between our great arteries of commerce and the public.

THE two decisions of the Interstate Commerce Commission in the so-caled five per cent rate case contain the essentials of a bill of rights for the roads. In these decisions * * * is to be found the following language:

"The proceeding before us may therefore be described as, in some sense, a controversy between the consuming public which pays the rates, and the investor who furnishes the facilities for moving the freight; and our duty is to ascertain from the record before us what are their respective rights. That, in fact, is the real railroad question—the just balancing of the mutual rights of the public and of the carriers under a national policy that permits and invites the performance of this public function by private interests. From that point of view the problems and difficulties of our railroad become public problems of great national concern. * * * *

"The public interest demands not only the adequate maintenance of existing railroads, but a constant increase of our transportation facilities to keep pace with the growth and requirements of our commerce. If, however, that development is to be accomplished with private capital, in conformity with our traditions, nothing can be more certain than that the facilities will not be provided except under such a system of regulation as will reasonably permit a fair return on the money invested."

In harmony with the policy indicated in the general statement just read, the Commission, after considering all the testimony presented, said further:

"In view of a tendency towards a diminishing net operating income as shown by the facts described we are of opinion that the net operating income of the railroads in official classification territory, taken as a whole, is smaller than is demanded in the interest of both the general public and the railroads; and it is our duty and our purpose to aid, so far as we legally may, in the solution of the problem as to the course that the carriers may pursue to meet the situation."

Speaking more definitely in the same connection the Commission also said:

"There can be no doubt upon the record that the carriers in Central Freight Association territory ought, in the public interest, to have as much additional revenue as would be produced by a five per cent increase, as modified herein, and possibly more.

* * * * * * * *

"The traveling public is giving expression to its demands for better service, better accommodations, and for the adoption by carriers of all the devices that make for safety. A public that demands such a service can not reasonably object to the payment of a reasonable compensation therefor."

The Commission also suggested certain reforms and changes of practice which, it was thought, would tend to augment net revenues.

In the decisions or opinions in the five per cent case from which I have just quoted, may be found not only a clear statement of the railroad problem of to-day as defined by the Commission, but also a recognition of the principles essential to and sufficient for its satisfactory solution.

The Commission concedes and asserts:

That there is in this country a fundamental need of adequate transportation facilities.

That such facilities during the continuance of present economic conditions can only be had by means of private capital, combined with private enterprise.

That private capital can only be obtained by the hope and realization of fair and reasonable return

That to produce such return, freight rates may be raised, when it is shown that existing rates as a whole yield inadequate revenue, and that the higher rates proposed would be reasonable.

That such reasonable passenger fares may be charged as will yield a fair return on the property devoted to passenger use, and further—that in general each class of service, including the mail and express, should contribute its just proportion to the total economic cost of operation.

By economic cost of operation I mean all costs, including the interest or dividends paid for the use of capital invested in the plant.

The foregoing principles have been contended for by the carriers; they have been clearly and freely admitted by the Commission in the five per cent rate case, and I believe when the matter is clearly understood will be just as freely granted by the general public, because I believe the public when correctly informed will be fair. Many things, however, that are admittedly fair and desirable are nevertheless difficult of attainment and particularly when, as in this case, large opposing interests are involved. The investor whose money is used in building the railroad, desires, and properly so, as large a return as possible on his investment. The shipper who pays the freight desires, and properly so, as low transportation charges as possible, and the employes of the railroads desire, and properly so, as high wages and good working conditions as may be fairly obtainable. It should be and is the function of regulation to so harmonize all these conflicting interests that, in the long run, the greatest permanent good may come to the greatest number. The relations between the railroad and the shipper have, as I have shown, been very clearly defined and established, but no authoritative word has yet been spoken concerning the relations between the railroad and its employes, or between railroad employes and the public. When it is recalled that the total number of railroad employes in the United States is roundly 1,800,000, or about one tenth of the entire voting population, and that 44 cents out of every dollar earned by the railroads, equal to $1,373,830,589 per annum, goes directly to pay labor, the magnitude of this phase of the railroad question becomes apparent.

I shall not enlarge upon this particular matter, but any discussion of the railroad question which ignored this feature would be incomplete, and any forecast of the future of the railroads which fails to take this matter fully into account will also be incomplete and unreliable. Railroad employes or many of them are required to perform duties of a more or less hazardous nature, and they are also called upon frequently to think and act quickly and to use good judgment. As a whole there is, in my opinion, no better or more worthy class of men to be found anywhere or in any employment. They are semi-public servants and as a rule serve the public well, and deserve well of the public. All this, however, should not blind the public to the fact that all elements of cost, including wages, must finally be reflected in the freight and passenger rates which the public must pay. The railroad has no other source of revenue.

If the principles established in the five per cent case be generally accepted, and actually made the basis of our national policy of railroad regulation, I feel confident that the problem of how best to provide adequate service at reasonable rates will be satisfactorily worked out under the present plan of private ownership with Government control, but I also believe that before this result can be fully realized, the interstate commerce law must be amended. The Interstate Commerce Commission should be enlarged and reorganized and its powers so broadened that it may be able to deal promptly and effectively with the various matters under its jurisdiction. It is not able to do so at the present time. The interstate commerce law as it is to-day reflects the influence in the past of a nation-wide demand upon Congress to enact a law or laws which should primarily be sufficient to protect the public from the assumed greed of the railroads, and to that end the Commission has been given the power among other things to order rate reductions and to prevent rate advances. It is right that the people should be protected from the selfishness of the railroads, but it is equally important that the railroads be protected from the unreasoning demands of the public. The Commission should be given the power to fix the minimum as well as the maximum rate which the railroads may charge. It should be kept in mind that the demands of the growing commerce in this country make necessary an annual expenditure by the railroads for additions and betterments of not less than $750,000,000. If those having money to invest lose confidence in the stability of railroad securities that fact is immediately reflected in reduced railroad expenditures for additions, betterments and equipment. Such expenditures at the present time I believe are at the lowest point reached in the last fifteen years, and much below the amount necessary to maintain the existing standards of facilities and service, and while the European war has had some effect, the situation was very serious before the war broke out and reflected in no small degree the results of our general policy of railroad regulation, particularly during the last ten years.

The policy referred to has found expression not only in the acts of commissions but in the laws as well—both State and Federal.

In the year 1913, one thousand three hundred and ninety-five bills, designed to regulate the details of practical railroad operation, were introduced in the legislatures of the various States then in session, and two hundred and thirty of those bills were enacted into law. Among these laws were acts regulating the hours of service, the frequency of wage payments and terms of employment of employes, rules for flagging trains, prescribing the kind of locomotive headlight, equipment of passenger trains, speed for live stock and other freight trains, protection and elimination of grade crossings, and equipment of stations and shops. The increases in operating expenses and taxes of the railroads, due to the causes just mentioned and to wage advances, have more than counterbalanced the economies derived from additional traffic and increased transportation efficiency, such as increases in the tractive power of locomotives, higher capacity of cars, increased freight train load, and other practices designed to cheapen the cost of transportation, leaving no increased income to apply on the enlarged property investment. No industrial undertaking can thrive, or even continue to exist, under such conditions. If the present plan of private ownership with Government regulation should fail because of unwillingness on the part of the public to invest further in railroad securities, it will be no less the fault of those responsible for the policy of regulation than of those responsible for the management of the railways.

The most serious question before the people to-day is not whether they are going to have cheaper freight rates in the future, but rather will they be able in the future to obtain *adequate service* at any rate.

The railroads may be depended upon to furnish adequate transportation for the growing commerce and at reasonable rates, providing only they feel assured that reasonable rates will be permitted, and providing also that the cost of operation be not unnecessarily augmented by unwise legislation, as has been the case in the past, or by forced wage increases not justified by existing conditions.

The total railroad mileage of the world as last reported was 683,000 miles, of which 258,000, or about 37 per cent, are in the United States. Of the total world mileage, it is estimated that about 205,000 miles, or less than one third, are at present owned and operated by the several governments, and there are those who urge that our railroads also should be owned and operated by the Government, instead of being privately owned as at present but regulated by the Government.

Those who advocate government ownership assert that because of its high financial credit the Government would be able to obtain the necessary capital at rates lower than are paid under the existing plan, but no one knows how much lower, or what the actual saving in that respect might be, or how long that condition might continue. The price of Government bonds under existing conditions is not a fair measure of what the Government might have to pay for money in large amounts and under open competitive conditions.

The advocates of government ownership also claim that all special privileges and discriminations would be abolished. That can be as easily accomplished under the present plan—in fact, has been. They claim that the Government by operating all of the roads as one system could save the unnecessary expense involved in the large number of employes now engaged in soliciting freight and passengers for the different lines. This is true, but it does not necessarily follow that the public would be the gainer thereby. The fact that our freight rates are already the lowest in the world is due very largely to the stimulus of competition, and competition would, of course, cease to exist under the plan discussed.

I have given some study to what has been written about Government ownership and operation of railroads in other countries, and I have ridden on, and to some extent examined into the actual working of the Government-owned railroads of the principal countries of Europe, and my views concerning the matter are the result of my reading and personal observation.

Beyond question, the railroads in Germany and particularly in the Kingdom of Prussia, are well maintained and well operated, but the freight rates which obtain in that country are much higher than they are in the United States. It is more difficult to make a comparison of passenger rates because the conditions of the passenger service in this country are so unlike the conditions in Continental Europe. However, when consideration is given to the different classes of service and the character of the equipment used, together with the fact that baggage is not carried free on any of the European roads as is the case in this country, I am convinced that passenger fares upon the average in the United States are no higher than they are upon the average for similar service in Europe. In no country outside of Germany, in my opinion, are the railroads operated and managed as prudently or efficiently under Government ownership as is the case in the United States under private ownership with governmental control, and freight rates in the United States are upon the average much lower than those charged in Continental Europe.

I am not consciously prejudiced against Government ownership of railroads, but my own experience and observation convince me that in our country the present plan is still the better one. If Government regulation of railroads with private ownership can not be made a success, I do not see how we can expect that Government regulation under Government ownership would be a success, and if Government regulation with private ownership is a success, then there would seem to be no good reason for bringing about a change which would certainly introduce new problems which might seriously affect our whole future economic development.

Under normal conditions and with present mileage, about 2,000,000 employes would be needed for our railways, with a payroll of approximately $1,500,000,000 per annum. I doubt seriously the wisdom of placing that additional number of men upon the civil list of the Government. I submit that so far the Government has not demonstrated its ability to carry on large industrial undertakings better than can be done by private enterprise, and until we have tangible evidence of such superior managerial capacity on the part of the Government, I think it would be a most unfortunate mistake to make the change. I do not believe government ownership of railroads in the United States is impending. I do not believe any considerable portion of the people desire it, and I do not expect to see it come unless the present plan should break down because of the unwillingness of investors to put more money in railroad investments. It must, of course, be recognized that the present plan can endure only so long as the railroads shall be able to obtain the necessary money voluntarily from those having money to invest.

However, if the principles enunciated in the "Five Per Cent Rate Case" be made the actual basis of our future national policy of railway regulation, and if the powers of the Commission be so broadened as to enable it to protect the railways as well as the public, I believe railroad investments will in time become so well established that the necessary new capital can be obtained from private investors at rates, upon the average, not more than one and a half or two per cent above the amount which the Government would be required to pay. The average rate (interest and dividend) paid in 1913 was 4.3 per cent. I doubt if the difference would be as much as two per cent, but assuming this figure and applying it to the total of $16,000,000,000 of railroad securities now outstanding in the hands of the public, the difference would mean $320,000,000 per year. As against that, if the people in this country were required to pay the higher freight rates which are charged to-day by the government-owned railroads of Europe, the increase in freight charges would be more than three times the amount which would be saved by the lower interest rates I have suggested.

I do not say, nor do I believe, that the rates in this country are likely to reach the level that obtains at the present time in Europe. Nevertheless, the fact that freight rates in the United States to-day, under our system of private ownership and governmental control are, upon the whole but little more than one half what they are shown to be on the average in those countries where government ownership has become an established policy, might well cause us to hesitate before giving up the existing plan for one which has so far at least failed to obtain equally satisfactory results in the way of cheap transportation. An increase of only one mill per ton mile above our present average freight rate would mean a difference of more than $300,000,000 per annum, a larger amount, I believe, than the Government could possibly save by lower interest rates due to its superior credit.

The general claim is also made that, for the reasons already mentioned and others, the Government could operate the roads better and more cheaply than the present owners and managers, and consequently give still lower freight and passenger rates. Undoubtedly the Government could, if it desired, give lower freight and passenger rates because if the total charges collected under Government ownership fell short of the amount necessary to pay operating expenses and interest on money invested in the plant, the Government could, by the exercise of its power to tax, raise in that way sufficient funds to meet the deficit. We have the example of a similar case in our neighboring country on the north. For the last two years, 1913 and 1914, the Intercolonial Railway of Canada, which is owned by the Canadian Government, has failed to earn its operating expenses, and of course has contributed nothing towards the interest upon the $97,000,000 which that system has cost.

Our postoffice has been managed in a similar way; that is to say, if there is a deficit, it is taken care of from the general fund raised by taxation.

It should be kept clearly in mind that it is the "economic cost" of transportation which the public is most deeply interested in, rather than the specific rates which may be charged. It is of primary importance that the total economic cost of transportation shall be made as low as is compatible with good service, for while the total cost may be paid wholly in the form of passenger and freight rates, or partly in the form of rates and partly in the form of taxes, in the long run it must all be paid in some form, and in whatever form it is paid, it is a burden on the people, the industry and the commerce of the country which they cannot escape. Rates, of course, may be made as low under Government ownership as the people through their government may decide, but the total economic cost of transportation, all of which the public must pay in one form or another, depends upon the manner in which the railways are managed, and not upon the question of ownership.

Now that it has come to be generally recognized that there is a very distinct and intimate relationship between the total economic cost of transportation and the rates which must be paid, the public should be furnished all of the information that is necessary to enable it to judge whether the railroads are being prudently and wisely managed. Full publicity concerning all matters of policy and management, including the raising and expenditure of new capital, will go far to insure honesty and to prevent discrimination, and no stronger motive for efficiency can be found than the natural desire for larger profits which, of course, will obtain, and properly so, with private ownership, but will be entirely lacking under government ownership.

Those who manage the railroads should realize, as I believe they do, that they occupy a dual position—that of semi-public officer and also that of trustee for the owners of the property of which they are in charge, and that in the end they will best fulfill the function of trustee by giving adequate and satisfactory service to the public.

There is no reason why we should be ashamed of our railroads as a whole. Professor Ripley says, in his recent book on railroads: "Never in our history, and probably nowhere else in the world, has the standard of probity, the quickened sense of responsibility, both public and private among American railroad men, been more pronounced than it is at the present time." He also says: "American railways are avowedly among the best in the world."

To my mind if there is any one thing distinctively American of which we should all be justly proud, it is our railway system, because, notwithstanding all that may be said against it, the fact remains that it has paid the highest wages, and sold its output—that is, transportation—at the lowest price, and at the same time has furnished more transportation per dollar invested in facilities than any other country in the world; a record, I repeat of which we should all be justly proud.

Government Regulation of Railroads

Note.—A brief reference was made in the March issue to an address delivered by Senator Underwood of Alamaba, before the Sphinx Club of New York, on the evening of March 9th. Upon his return to Washington, Mr. Underwood requested that his remarks on this occasion be printed in the "Congressional Record," which was accordingly done on March 15, 1915. The following paragraphs constitute Mr. Underwood's full statement on "Governmental Regulation of Railroads."

NO GREAT economic question is settled finally until it is settled right. To consider and decide the problems that confront the railroad world to-day, we must lay aside passion and prejudice, greed and desire, personal interest and political bias, and approach the solution of the problem from a judicial point of view, as seekers after the truth, with a determination to stand only for the right.

"Let us not forget that the money invested in our railroads exceeds the public debts of the four greatest nations of the world. That from the standpoint of capital, the question presents itself as an investment of money.

"Let us not forget that trade regards the railroads as its best customers; that the output of thousands of mines, furnaces, factories are required each year to supply the consumptive capacity of the great railroad systems of the United States.

"Let us not forget that labor recognizes that the railroads employ a million and a half of men and pays a wage that approximates that of the embattled armies of Europe.

"Let us not forget that in the end the public, either as passengers or shippers, must pay every dollar that is required to maintain and operate the great transportation system of our country.

"Have I defined the points of view from which the solution of the problem that confronts us must be approached? Not yet. As the human body in all its beauty and strength must fall and die when the heart ceases to drive its life blood to the extremities, so too will invested capital perish, trade languish, and labor starve when the great railroad systems of our country fail to perform the function for which they were created, and economically and efficiently transport the products of our fields and our factories to the ultimate marts of trade where they may find ready sale and rapid consumption.

"Finally, let us not forget that commerce is the vital part of a healthy business development and that an efficient transportation system is as necessary to the life of commerce as the heart is to the life of the human body.

"The railroads are the country's most important highways. Destroy the railroads as they exist to-day and you destroy our commerce and bring disaster to our people. Without their proper maintenance they will soon cease to exist. Unless you extend and enlarge our present transportation facilities the business development of our country must stop where it is to-day.

"We have undertaken the problem of Governmental regulation of railroads and the Government will not turn back. Regulation of practices and rates is here, and here to stay.

"But let us stand for wise and just regulation and not for ill-considered and dangerous regulation. We must regulate so as to insure all necessary railroad facilities both for the present and for the future.

"As the public in the end must pay the bill, they are primarily interested in the railroads securing the money needed for their maintenance and development at reasonable rates and equally interested in seeing that it is wisely expended.

"That no unnecessary highways are built in the future, and those that are selected for extension and development are best adapted to carry commerce with the least burden are Governmental problems of the first importance, for it must be remembered that when you construct two highways where one can render the service required, the public in the end will bear the burden of the cost of the additional highway without receiving a commensurate benefit in return, for rates no longer will be fixed by competition now that Government regulation has become the fixed policy of our people.

"To regulate the freight and passenger rates of the railroads so that the rates may be both just to the invested capital and at the same time reasonable to the public is a secondary problem, but of scarcely less importance than the one I have mentioned first. Together they embrace the alpha and omega of the railroad problem of our day.

"In the solution of these problems we must protect the rights of private property invested in the railroads and at the same time assure to the public fair and reasonable treatment in the movement of commerce of our country.

"I have said that the fixed policy of our people was regulation by the Government of our railroad systems, and it is; for whether you agree with me or not you may as well accept my conclusion. Revolutions never move backward. If governmental regulation is unable to solve the vexed problems that confront us, the people will accept Government ownership of railroads as the next step ahead. It is, therefore, a matter of great importance that we should earnestly endeavor to reach a fair and reasonable solution of the problem of regulation at as early a day as is possible.

"The transportation problem is so closely interwoven into the business fabric of our people that governmental control in some way was inevitable from the beginning. In almost all countries the railroad question is one of first importance, and has been met in foreign lands either by governmental regulation or ownership; but in other countries the problem has not been as difficult of solution as in our own, due primarily to two causes: Our large population and vast natural resources located far inland and at great distances from water transportation makes railroad carriage indispensable, and industrial freedom could be guaranted only by just regulation.

"Another difficulty that hinders the solution of the problem here and is not met abroad is a political one. Our dual system of government greatly increases the difficulties and uncertainties that surround the problem before us. Our Federal Government and 48 state governments constitute the 40 masters that the railroads must obey. It has been said: 'No man can serve two masters.' All of the important railroads run through two or more states and are subject to different laws, rules, and regulations whenever a train crosses a state line.

"It is true that our lawmakers and our judges have endeavored to differentiate between interstate and intrastate business, but the effort to do so had led to much confusion and to much litigation. In the passenger coach we find an interstate riding beside an intrastate passenger, and in the baggage car a package that will reach its destination within the state in which it was shipped resting against a parcel whose destination is across the state line. Consider for a moment that the one package is subject to the rule of one and the other must obey the mandate of at least three masters.

"The difficulties that confront us do not end here. If a uniform system of regulation were adopted by the Federal and all the state governments you would not have solved all the difficulties of regulation and control, because the railroads are privately owned, and our courts have held inviolable the right of the railroads to charge rates that will produce a reasonable income on the invested capital.

"If the corporation is successful in earning more than an adequate income, the rates may be regulated; but if the revenue received is not a fair return on its invested capital, the government is powerless to act.

"Low rates and adequate facilities are demanded by the public, but the granting of one is often the denial of the other. Adequate facilities very often require the expenditure of large sums of money. Low rates prevent the accumulation of surplus capital and lessen the borrowing power of the roads. The price of new facilities must always be the acquisition of new capital from some source. Without new railroad facilities, our commerce can not expand beyond our present limitations and trade has met a permanent barrier to its future development.

"It is therefore the public and not the stockholder who must suffer most if our regulation policies are inadequate to meet conditions fairly, broadly, and safely; for the travelers and shippers must defray the cost of transportation and pay for incompetence in building, operating and regulating. The tax paid by our people for freight and passenger transportation for the year 1912 amounted to $2,826,917,967, and the part of the gross receipts that went to the stockholders as dividends was $346,805,582, or 12 cents out of every dollar. In fact, 88 cents of every dollar paid by the public went for operating expenses, taxes and interest before there was a cent for new facilities or dividends.

"The matter of dividends to-day is a very small part of the equation we must solve. The public must be interested in the items that make up the operating expenses of the railroads if it desires both adequate facilities and reasonable rates.

"For more than four decades the Federal Government and the states have enacted laws supervising the practices and regulating the rates of the railroads, and it can not be denied that much good and some harm has resulted to the public.

"In the beginning the railroads denied the right of any government to control what they were pleased to call their private property, but they overlooked the fact that the grant given them was to maintain a public highway in which the public was as much interested, if not more so, than their stockholders. Step by step governmental regulation has advanced until to-day railroad corporations are controlled by the public in respect to every detail of their business, and this control has been accepted and recognized by their managers.

"It can not be denied that public control has reduced the rates charged for transportation and abolished unjust discriminations given to favored shippers. No one now contends that localities, as well as shippers, should not be treated with equal fairness.

"But the greater problem remains unsolved. Can the money be provided to expand and develop these great public works in a manner commensurate with the expanding needs of our commerce under the present systems of public control?

"For a time the growth of population on new lines and increased motive power for train service on old lines enabled the management to provide new facilities and at the same time reduce rates, but the limit to development along these lines seems to have been reached.

"In recent years accumulated surplus of railroads have largely disappeared; dividends have been greatly reduced, and the ability to secure long-time loans at low rates of interest has passed away. Without cheap money for development, new facilities can not be obtained and low rates for transportation be maintained.

"We must all give credit to the present system of regulation for the accomplishment of much good in the interest of the public, but those who are giving careful study to the railroad problems that confront us are bound to admit that our present system of regulation is breaking down, in so far as it has supervised the finances of our railroad systems with a view to allowing them to properly protect their securities that their credit may be maintained to aid in present and future development.

"If railway investments can not be made attractive to capital, is not the Nation threatened with an inevitable breakdown of its transportation systems?

"We can never have permanent prosperity in the country until our great problem of transportation is settled and settled wisely. There is no more difficult problem awaiting its solution ahead of us, and no more inviting field for the exercise of true statesmanship has ever faced our public men.

"The problem can be solved and will be worked out satisfactorily to both the investor and the shipper, but it can be solved only by wise, fearless, and patriotic men, in the daylight of publicity, with the determination to do exact and even-handed justice between invested capital and the public.

"Let us concede without cavil that transportation and commerce can only advance when they go hand in hand. Let us inspire courage and give aid to those leaders who, not by chance but through merit, direct our industry, control our trade, and manage our finance. It is not enough for our government to permit those men to rise from the prostration which has overtaken them and their affairs. It must occasionally assist them. We have reached the point on our way to social betterment where sound progressivism must recognize that the proper regulation of business requires that it must be sometimes helped and not always hindered; must be sometimes assisted and not forever stricken; that we must occasionally say, 'You may,' and not always, 'You shall not.'

"It is gratifying to know that the policies mentioned are responsive to natural growths and can be achieved without entrenching privilege and subsidizing trade. We need only to permit railways, traders, and bankers that economic freedom which is consistent with a wise and helpful regulation of all affairs and to give every citizen the national protection to which he is entitled, wherever he may rightfully be—at home or abroad—for our trade to gain its lost position and for our flag to be seen on every sea."

Why Will the Government Never Own the Railroads?

By T. S. FORD, AUDITOR, SAN ANTONIO, UVALDE AND GULF RAILROAD.

TWO principal reasons, Taxes and Politics, though there are fully 40 other reasons.

The railroads of the United States pay approximately $150,000,000 per annum in taxes. Will the different States, counties, towns and school districts forfeit that revenue through government ownership? If not, how then will it be made up to them by the Government?

Will the Government fork over every year out of its surplus that amount of money, and if so how will it be apportioned among the various tax bodies and what will be the basis on which taxes are to be levied?

First of all these taxes which the railroads pay will increase year by year. Will the Government's unappropriated surplus pay $150,000,000 in taxes?

Bear in mind that before there remains a cent for tax revenues the interest on the debt which the Government owes for purchase of the railroads must be deducted.

The Government can never buy the railroads for an amount less than their existing interest bearing debt and besides that something additional for stock and franchise values, so that the interest charges will be in excess of that now borne by the railroads and must be provided for out of surplus before leaving anything for tax revenues.

Another thing that must be provided for ahead of the tax revenues, is a sinking fund for discharge of the interest bearing debt. That will still further reduce the tax revenues because now this sinking fund provision is not imperative, but with Government ownership it will be.

Take, then, the figures for a normal fiscal year and they would appear about as follows:

Net operating revenues	$1,000,000,000
Deduct interest on funded debt	500,000,000
Deduct sinking fund	500,000,000
Balance for tax revenues	0

The sinking fund is calculated by assuming the average time of maturity of present outstanding debts to be 25 years and taking 1-25 of that for one year. The Government must either provide this redemption fund or else charge all permanent improvements every year to income. It will not do to pile up and capitalize expenditures for improvements annually with no provision for liquidation of them nor of the already existing debt.

While it will be seen there would be nothing left for tax revenues under the sinking fund provision, say that no sinking fund were provided, and that the Government could appropriate the $150,000,000 tax revenues, how would it be apportioned?

Would a county in eastern Colorado, or western Nebraska or west Texas receive a proportion based on the per cent which the railroad mileage in those counties bears to the total railroad mileage in the United States? Or would it be divided on the basis which railroad revenues in a given state or county bear to the total railroad revenues and would that mean the gross revenues or the net revenues after expenses are deducted? Or would they be based on the value which the railroad properties in the states, counties, etc., bear to the total railroad values in the United States? Or will the Government arbitrarily place its own values on the railroad properties in every state, county, town, etc., and will the taxes then be levied on this valuation?

Suppose the railroad revenues in a given state net nothing for taxes, does that mean no taxes in that state, nor counties and towns? Suppose there should be no tax revenues earned in a state as a whole, while the revenues in certain counties of that state were sufficient to produce tax revenues on the railroad property in those counties; must the producing counties be deprived of tax revenues because the losses in the non-revenue counties eat up the profits?

Suppose some years the railroads earn tax revenues and some years none; will the obligation be cumulative year by year until paid or will each year's results stand by itself and when no revenues, no taxes? Will the Government tax itself at all anyhow and if not, then will this deficiency of $150,000,000 be made up by increased taxes on everybody else?

A second good reason why the Government will never own the railroads is Politics.

The political party which happens to be in power when the Government acquires the railroads, and is responsible for that action, will either stay in office forever or will never see daylight again, according as they will settle the tax question; the labor question; the vestibule train question; the dining car and sleeping car question; make a time table to suit everybody; fix the high and low places in the track; build all the new depots and side tracks everybody wants; systematically reduce the freight and passenger rates year by year; furnish free ice cold pop at all the depots and carry the mails for nothing.

N. B.—There will be no labor unions to raise the pay of, they having in the meantime joined the Do Do and the Zook Zook. The Government will pay whatever rates of wages appear consistent, and that it can afford to pay; nothing more, and this will apply to all employes, not to any particular class or classes, and that is what the railroads ought to be doing to-day.

Can you imagine any Government bringing on to itself a chaos of this kind, and yet it might. Governments do crazier things than that. Look at the European war. But, as might be expected, that is in Europe. It would not be possible in this country.

If you can imagine all the various tax bodies and the would-be Henry Clays and John C. Calhouns voluntarily and cheerfully surrendering their Constitutional rights to ride into everlasting political glory on the backs of the railroads, you can imagine such a thing as Government ownership.

Train Crew Legislation and Its Effects

NOTE: The Bureau of Railway Economics at Washington has recently issued a pamphlet containing a review of the arguments for and against train crew legislation, from which the following paragraphs are taken:

WITHIN recent years, numerous bills to regulate the number of men that railways must employ in their train crews have been introduced in the State legislatures and in Congress. These measures are commonly known as "full-crew bills." They specify, sometimes the number of men that must be employed on passenger trains; sometimes the number of men that must be employed on freight trains; sometimes the number that must be employed in switching service, and sometimes the number that must be employed in all of these classes of service. Such measures have become laws in twenty States, namely, Arizona, Arkansas, California, Connecticut, Indiana, Maine, Maryland, Mississippi Nebraska, Nevada, New Jersey, New York, North Dakota, Ohio, Oregon, Pennsylvania, South Carolina, Texas, Washington, and Wisconsin. In some cases they merely require the employment of the number of men that it is customary for the railways to employ, existing practice not being affected. In at least twelve States these laws compel the employment of additional men. Within the last six years, nine bills have been presented in Congress, each of which would have compelled the employment of more men; but no Federal train-crew law has yet been enacted.

The first efforts to secure train-crew legislation date back a number of years, and these efforts have been continued with great energy and perseverance. For example, a bill was introduced in the Massachusetts Legislature in 1902 and defeated. It was again introduced in 1903 and 1904 and defeated in both years. It reappeared in 1908. On this occasion the Legislature referred the whole matter to the State Railroad Commission for investigation. The Commission, after inquiry, reported that if the officers of the railways would see that the provisions of the Standard Code of operating rules were enforced, and make some changes in methods locally, legislation would be unnecessary. The bill was again introduced in 1909 and defeated. It was again introduced in 1912, and this time was passed by both Houses. Governor Foss vetoed it; whereupon an unsuccessful attempt was made to pass it over his veto.

Later, the Board of Railroad Commissioners issued several recommendations regarding the manning of trains, with which all the roads at once complied.

Both State and Federal bills have been introduced from time to time at the instance of railway labor organizations, the chief promoter of such legislation being the Brotherhood of Railroad Trainmen. The legislative representatives of these organizations have repeatedly announced that their members would vote against law-makers who did not support the measures they demanded. Many members of the Brotherhood itself have not favored, or have been opposed to, the proposed legislation. But opposition on their part is now stopped by a resolution of the Brotherhood to the effect that its members cannot sign petitions against labor legislation, "nor interfere with the work of their legislative representatives, without violating the law of the Brotherhood, which would mean expulsion for the offending party." [1]

The labor brotherhoods and the members of State legislatures and of Congress who have favored such legislation have advocated it chiefly on the ground that the employment of more men in train service is necessary to the safety of railway employes and passengers. Such legislation has been opposed by officers of the railways, by many commercial and agricultural organizations, and by many members of State legislatures and of Congress on the ground that it does not increase the efficiency or safety of railway operation or otherwise benefit the public, and hence that it does add unnecessarily to railway expenses. Therefore railway managers have in several cases urged State governors to veto such measures. In New York and Missouri the governors, notwithstanding earnest protests from railway officers, signed the bills as passed by the legislatures and issued statements indicating their belief that they would promote safety and were therefore in the public interest.[2] On the other hand, Governor Sulzer's two immediate predecessors, Governors Hughes and Dix vetoed train-crew bills that had been passed by the New York Legislature. Governor Cruce, of Oklahoma, Governor Foss, of Massachusetts, and Governor Harmon, of Ohio, also have vetoed similar bills on the ground that general legislation requiring the railways to employ additional men on trains was undesirable. But in all except Massachusetts and Oklahoma subsequent enactments have been approved. A number of State legislatures have also refused to pass train-crew bills; among these are the legislatures of Colorado, Delaware, Florida, Georgia, Illinois, Iowa, Kansas, Kentucky, Louisiana, Michigan, Minnesota, Montana, New Hampshire, New Mexico, North Carolina, South Dakota, Tennessee, Utah, Virginia, West Virginia, and Wyoming.

It is obvious that an increase in the number of men in a train crew means an increase in the operating expenses and, unless accompanied by a corresponding increase in the traffic per train or in rates, means a decrease in net operating revenues. The railways are reporting to the Special Committee on Relations of Railway Operation to Legislation careful estimates of the additional expense resulting from operating legislation already enacted. On January 26, 1915, the committee made public the following compilation of replies received by it from 166 railways, operating 204,610 miles of line, regarding the expense caused them in the fiscal year ended June 30, 1914, by legislation, both Federal and State, affecting operation:

COST OF LEGISLATION AFFECTING RAILWAY OPERATION —SUMMARY OF REPLIES OF 166 RAILWAYS, OPERATING 204,610 MILES.

Federal and State Laws	Cost of Compliance. Year ending June 30, 1914	Total to June 30, 1914	Amount necessary to complete (estimated)
Hours of service	$5,013,345	....	....
Full (extra) crew	4,051,533	....	....
Boiler inspection	4,141,051	....	....
28-hour stock law	247,119	....	....
Semi-monthly pay-day ...	826,586	....	....
Safety appliance	$5,965,926	$23,845,436	$19,588,408
Postal car requirements .	890,907	4,391,531	3,129,670
Ash pan	86,818	2,017,562	165,073
Headlight ...	1,002,840	2,635,294	624,966
Caboose	597,206	949,029	2,614,406
Jim Crow ...	29,623	659,380	1,468
Other enactments	2,785,850	12,852,649	96,684,127
Specific orders, State Commissions ...	3,065,179	....	....
Total	$28,703,983	$47,350,881	$122,808,118

Collisions where third brakeman was employed, year ending	Number Killed	Persons Injured	Total	Property Damage
June 30, 1914....	30	641	702	$411,228

It will be seen that the total expense caused by operating legislation in the fiscal year 1914 to the railways reporting was $28,703,983. This would pay a return of five per cent on an investment of $574,000,000. The total expense caused by the extra-crew laws was $4,051,533. This would pay five per cent on an investment of over $80,000,000. This estimate applies to the expense to the railroads on account of train-crew laws enacted in only a limited number of States. The full effect can be seen only from estimates that apply on account of all such laws to all the railways in the United States. Four train-crew bills were introduced in Congress in 1909 and 1910. The Special Committee on Relations of Railway Operation to Legislation made inquiries early in 1910 of all the railways as to the cost to them of complying with these Federal bills, if enacted, as well as the expense they were being put to on account of State legislation then in force in thirteen States. The following table is a summary of the replies received:

Estimate of 1910	Number	Mileage	Amount of additional annual cost of compliance with full-crew bill
Roads replying	166	205,547	$18,328,302.32
Estimated for other roads exclusive of Canadian and Mexican roads ..	126	23,254	1,953,336.00
Total	292	228,801	$20,281,638.32

Another bill was introduced in Congress in 1912 which required that on each freight train containing 25 or more cars the crew should consist of at least an engineer, a fireman, a conductor, and three brakemen, "regardless of any modern equipment of automatic couplers and air brakes" This bill made no reference to passenger train crews As a result of inquiries made of the railways by the Special Committee on Relations of Railway Operation to Legislation, in connection with this proposed Federal law, the following compilation was made from the replies received from 143 operating companies:

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[1] From *The Railroad Trainman*, the official publication of the Brotherhood of Railroad Trainmen, for May, 1913, p. 465.

[2] In Missouri the railroads circulated a referendum petition, and secured enough signatures to have the measure submitted to a vote of the people. As shown elsewhere herein, the law was defeated by a majority of more than two to one by the voters at the election in November, 1914. See page 40.

ESTIMATES OF COST, IN 1912, OF TRAIN-CREW LAWS FURNISHED BY 143 OPERATING COMPANIES OPERATING 195,049 MILES

Trains affected by State laws then in effect, per annum	678,661*a*
Additional trains affected by proposed Federal law in States then having full-crew law, per annum	468,483
Trains affected by proposed law in States then having no full-crew law, per annum	3,211,056
Total trains affected by State laws and proposed Federal statute, per annum	4,358,200
Cost of compliance with State laws then in effect, per annum	$1,797,589.94*a*
Additional cost of compliance with proposed law in States then having full-crew law, per annum	1,342,237.17
Cost of compliance with proposed law in States then having no full-crew law, per annum	10,255,790.66
Total cost per annum of compliance with State laws and proposed statute	$13,395,617.77

a Does not include States where laws were passed subsequent to 1911.

It should not be overlooked that this expense is only a part of the total increase in operating expenses that has been caused by legislative requirements imposed upon railroad operation. Such further legislation includes laws requiring eight-wheel cabooses in place of four-wheel cabooses, laws limiting the hours of service, requiring electric headlights, requiring the installation of improved safety appliances, regulating the stops of passenger trains, the speed of stock and freight trains, requiring the abolition of grade crossings, or the installation of additional watchmen at crossings, requiring double track, and providing for days off at the company's expense. Quite independent of the question of the defensibility of these laws is the fact that they add greatly to the expense of railway operation, which must eventually find expression in higher charges to the public than would otherwise be made.

Depreciation and Appreciation in Railroad Valuation

NOTE: The following paragraphs are taken from an article by A. M. Sakolski, entitled "Some Economic Problems of Railroad Valuation," appearing in the *American Economic Review* for March, 1915. Besides the question of Depreciation and Appreciation, Mr. Sakolski's paper deals with the basis of "Reproduction Cost," the so-called non-physical costs and the valuation of "right-of-way" and other real estate.

THE valuation act requires that an estimate be made of the "cost of reproduction less depreciation." The meaning of the term "less depreciation" as used in the act, the methods appropriate for the ascertainment of the amount thereof, and the values or elements of value which may offset the same, are therefore among the prominent matters requiring adjustment in the valuation task.

Provisions for losses in value due to depreciation are a different matter altogether in valuations from depreciation provisions common in accounting practice. This is particularly manifest in the case of a composite property such as a railroad. It has been pointed out by Mr. Frederick A. Delano and Mr. Richard J. McCarty that the depreciated condition of a railroad property *in use* is seldom below 50 per cent, and on a property well maintained the condition per cent (i.e., original condition less depreciation) is not very much below 100 per cent. In ordinary business practice, provision for depreciation (particularly when based on so-called "mortality tables") covers the cost of renewal when the piece of property in question is expected to reach a condition requiring renewal. It has no reference to loss of original condition due to use. In other words, depreciation accounting aims to provide for the replacement in bulk of the capital investment in an item of property *at the time when such property is no longer profitable to retain in use*. In this way the renewal expense, as well as the depreciation expense, is prorated over the period of the life of the use of the property. This method cannot, therefore, be properly applied in valuation. In valuation, it is not a matter of providing for the replacement of capital investment. It is merely a matter of determining the investment represented in the property on a definite date. If the property is absolutely new, the condition is 100 per cent; but, since through use or lapse of time some deterioration from the original condition may result, there may be a certain loss of value, though not necessarily. This loss in condition has no necessary relation to depreciation accounting. Accordingly, depreciation accounts cannot properly be used for measuring condition per cent. In the most recent report (1914) of the committee on railroad valuation of the National Association of Railway Commissioners, it is admitted that there is a distinction between depreciation as an engineering question and as an accounting question. This report states:

"From the engineering aspect we get light upon depreciation by considering it as a condition at a given time of a piece of property as compared to new. The bookkeeping aspect has to do with setting up of a bookkeeping method for the purpose of accumulating a fund which in a given time on a straight line, curve or other formula, will accumulate a certain amount of money. One deals with a theoretical condition; the other, with actual. Whenever an attempt is made to determine the reproduction cost less depreciation, we of necessity must follow the condition per cent idea and deal with the actual."

Mr. McCarty, vice-president of the Kansas City Southern Railway, in his pamphlet entitled

"Depreciation of Railroad Property," cites the instance of one wooden trestle costing $1,000 which it is necessary to renew each year, and another trestle built at a cost of $1,500 but having an expectation of ten years' use. He concludes that in the first case the cost of maintenance in ten years will be $10,000; and in the second instance, but $1,500. The apparent disparity is due to the failure to distinguish between the renewal expense and actual depreciation or loss of condition. With the $1,000 trestle it is merely a matter of annual renewal, whereas in the case of the $1,500 trestle, because of annual accounting periods, there is the element of annual loss of condition over ten years of $50 per year and also the minimum cost of replacement, $1,000, at the end of ten years. In making a valuation of the trestle, the minimum value in either case would be in the neighborhood of $1,000. In accounting for the investment represented in the trestle which is renewed annually, the books at the end of the year, i. e., the time just previous to the renewal of the trestle, may show full capital investment for this item, or, instead, a renewal or reserve fund of $1,000. It can be seen, therefore, that a value of approximately $1,000 may be put on the property, though the books may show the value entirely extinguished—this value having been converted through charges to income into other forms of assets.

The failure to properly distinguish the accounting concept from the engineering concept of depreciation is resulting in much confusion and controversy. The engineering profession, because of its predominance in recent valuation work, tends to invade a field hitherto beyond its own bailiwick. As pointed out by Vice-President McCarty, of the Kansas City Southern Railway, the work of the engineer terminates at the point at which the quantities and values for use of the different parts of the physical property of any given public utility shall have been determined, and from this point forward the problem ceases to have particular significance to him. The reason for this is that the determination of the elements of value of a public utility, and the application of such values in determining the amount on which a public service corporation is entitled to a fair rate of return, are problems of an entirely different character and belong to entirely different departments of thought and experience.

The engineering idea of depreciation with respect to units of physical property is primarily a measure of condition of physical parts. There is accordingly no necessity to compute estimates from the standpoint of probable life, though as a bookkeeping exigency this is required in modern accounting practice. A locomotive after several years' use may perform its service more adequately than when first put into operation, and, if after a number of years it is constantly restored to full efficiency through operating expenditures (even though all its original parts have been entirely renewed), there will be no real depreciation other than that represented by deferred maintenance. Of course, the element of obsolescence may be present, but this is an entirely different matter. Obsolescence is a contingency which may become a fact without reference to physical condition. Experience furnishes no safe basis for its future trend, and hence it is not adjustable to a formula.

The principles of depreciation as defined in accounting practice and from an engineering viewpoint are not necessarily conflicting. In fact, under certain conditions the amounts determined by each method may be very similar, and the "depreciation reserve" may be used as a basis for estimating actual physical deterioration of value. For example, in relining blast furnaces, where the relining can only be done conveniently at relatively long intervals, a depreciation reserve set aside for this purpose may be used fairly to estimate the loss in value due to the use of the furnace. In this case the depreciation reserve covers merely the deferred maintenance which has been necessarily deferred because of the fact that when the furnace is in operation the repairs cannot be made concurrently with the deterioration. In fact, the reserve is required merely because the intervals at which the relining is done do not coincide with the periods when the earnings are computed.

The different principles involved in engineering valuation and prevailing bookkeeping methods may be illustrated with reference to appreciation. It is widely contended that appreciation of certain items of property such as land, embankments, etc., is an offset to depreciation of certain wasting assets; but in common accounting practice, although depreciation is considered a loss which must be deducted from profits, i. e., a debit against operation, appreciation is not placed as a gain or a credit. The reason is that no entry is made on the books to cover any increase in the value of assets unless such increased value arises from a transfer or sale. Thus, while entries may be made to cover depreciation, no entries are generally made to cover appreciation unless such appreciation is realized in cash or equivalent.

The appreciation of a railroad property is undeniably a significant element of value. It may be due to other causes than the so-called "unearned increment" arising from natural causes and from increase of population and wealth. The increment due to solidification and adaptation is not a work of nature similar to reforestation. It was recognized early in railroad history that current maintenance during a number of years after a line is in operation covers in part additional construction cost. The repairing of slopes, of cuts and embankments, the improvement of drains and water courses, the solidification of sub-grade and ballast, all involve considerable expense which has not been added to capital account.

The general practice of the state commissions has been to deduct a percentage for depreciation from the various units entering into the valuation. It would seem that appreciation ought to be allowed for in the same manner, and in many cases it has been. In making an appraisal of the Spokane and Inland Empire Railway, the public utilities commission of Washington fixed 110 per cent of the reproduction cost new as the value of the grading at the time the valuation was made. In Minnesota, appreciation was provided for by a separate item, "adaptation and solidification of roadbed," amounting for all the roads in the state to $11,743,007, which was 21 per cent of the reproduction cost of the grading, clearing, and grubbing. In the valuation by the Massachusetts commission of the New York, New Haven and Hartford an allowance of $500 per mile, or a total of $805,000, was made for solidification, this being considered by the commission as very conservative. An allowance was also made by the Washington commission in its railroad valuation.

Systematic Sanitation Work on the Chicago and Northwestern Railway

N December 18, 1912, the Chicago and North Western Railway Company inaugurated a systematic plan of sanitary inspection on its lines under the direction and supervision of Dr. C. G. Elmore, who was given the title of sanitary inspector.

In undertaking this work the Chicago and North Western Railway was the pioneer among American railways in placing its sanitation work on a thorough and systematically organized basis, and for this reason the campaign at once attracted widespread publicity.

Before the installation of the new department the duty of looking out for matters of sanitation was largely a part of the responsibility of the division superintendents, and in pursuance of the Chicago and Northwestern's policy of always seeking to give its patrons "The Best of Everything" it was declared that the welfare and comfort of passengers and employes justified this important work in the hands of a separate department.

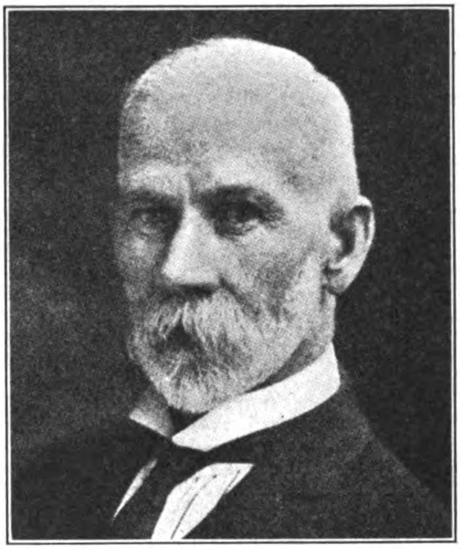
Dr. Elmore was well qualified to take charge of such a department. He was born at Crawfordsville, Ind., April 10, 1858, and for 25 years had been local and district surgeon for the Chicago and North Western on the Black Hills division. During this period he had for years made an especial study of all matters pertaining to sanitation.

At the start Dr. Elmore confined his efforts mainly to the inspection of equipment arriving at and departing from the new passenger terminal at Chicago. As rapidly as possible, however, the field was enlarged until he and his force of ten inspectors have jurisdiction over all of the 1,150 stations on the 10,000 miles of the Chicago and North Western System, as well as of all restaurants, parlor cars, buffet cars, dining cars, chair cars, coaches and baggage cars, and of the employes' quarters at such places as roundhouses, shops, etc., over the entire system. Moreover, a general watch is maintained of all employes as regards health and cleanliness, and when one is found with symptoms of a communicable disease he is taken out of the service until fully recovered.

In fact, there is a general supervision of all phases of the railroad service having to do with the sanitary condition of everything with which the public and employes come in contact.

In addition to the regular supervision constantly exercised as to sanitary matters employes have taken it as a duty they owe the company, as well as the public and themselves, to look out for and report immediately any unsanitary condition they may find in their respective localities.

Some idea as to the magnitude of the task assumed by Dr. Elmore may be gained by a consideration of the number of coaches cleaned and inspected, which in Chicago alone amounts to 16,500 in one month. The coach yards at Milwaukee and Council Bluffs also handle large numbers and the cleaning done at other points of the system swells the total considerably. Twenty-six barrels of liquid soap are used each month for scrubbing, in addition to vast quantities of hard soap for washing the interiors of coaches, disinfectants, sterilizers, deodorants and germicides.



Dr. C. G. Elmore.
Sanitary Inspector for the North Western.

Car Cleaning and Inspection.

At the principal coach yards a card system has been adopted by which a car inspector can tell at a glance whether or not the thorough cleaning demanded has been done as it should be done, and if, after inspection, he finds any part of the work unsatisfactory, can tell who is responsible and have that employe go over his work.

As an example of the thoroughness with which this work is done the following is quoted from a letter of instruction placed in the hands of interested employes at the inauguration of the movement: "At the final terminal of trains, cars must have all refuse cleaned out of them, being particular to see that any accumulation back of or under steam pipes, and radiators, seats, hoppers, etc., is removed, and at such terminal, cars given a thorough scrubbing, using disinfectants and deodorants, in accordance with recent instructions. Interiors should be dusted, including the seat arm rests, window sills, window glass cleaned inside and out, and not just in the center, but corners as well.

"Drinking water tanks are to be cleaned each trip, and thoroughly scalded out so that there will be no question but what same are in sanitary condition. In supplying water, it must be pure and free from deposits of any kind, and the same care exercised with ice, which must be handled with ice tongs at all times.

"Outside cleaning must be taken in hand vigorously, and equipment either dry wiped or scrubbed, according to weather conditions. Platform and platform steps must be scrubbed or swept off before cars are sent out."

All coaches are required to be so ventilated that each passenger shall be supplied with 1,000 cubic feet of fresh air each hour with the doors and windows closed. Coaches in which any passengers with contagious diseases have been transported are immediately taken out of service and fumigated, and there is at all times a general fumigation of coaches and way cars to keep them clean and sanitary.

All water and ice used in cars or in stations is analyzed once each week and all ice is handled with tongs and never comes in contact with employes.

In addition to the cleaning of water coolers every trip, once a week they are steamed out with live steam.

The sanitary inspector makes periodical trips of inspection to see that all instructions as to sanitation are implicitly followed and has especial care exercised with regard to a number of seemingly small details. For example, the corners of window sills are given extra cleansing and disinfecting. Fish racks in baggage cars are kept thoroughly clean and fresh with cleanser and deodorant. Milk-loading stations are watched to see that no milk remains on the platform to attract flies or other germ-carrying insects.

The work of the sanitary department has led to a number of suggestions as to new features of construction in equipment and stations to conform to the views of the sanitary inspector, based on the experience gained in two years' work. For example, latticed foot rests in coaches have been replaced by foot rests of steel so that refuse cannot collect under them, and steam pipes have been raised from the floors so that the floor may be readily cleaned and disinfected without leaving any corners untouched. The window blinds in lavatories have been discarded for the more sanitary frosted glass windows. Each lavatory is provided with ample ventilation and plenty of deodorant and germicide are used.

Of course, a very important part of the work of the department of sanitation has to do with the dining cars and commissary department. All dining cars are inspected at the terminal before starting on a trip and while on their regular runs with special regard to the refrigerators containing meats, fresh butter and milk and perishable vegetables and the commissary department is inspected daily for the refrigeration of all perishable foods.

All supplies furnished to the dining, cafe and parlor cars are received by men who are clothed in long, white butcher's coats, white caps and white gloves. The scales on which provisions are weighed are thoroughly cleaned each morning before business begins. After supplies are received at the commissary they are at no time handled by any employe with his hands. All supplies are wrapped in sanitary white paper or otherwise protected. Potatoes are kept in bags and the different kinds of supplies are kept separate. In addition to the sanitary paper covering, they are further protected by a blue cloth placed over them so that they are never exposed to flying dirt, smoke, etc.

A thorough inspection is made of all supplies and an inspector accompanies each truck load to its car to see that they are properly handled after they reach the car and that they are put away in their proper place and again covered up.

Milk and cream cans are thoroughly scalded with live steam after each delivery to cars and all vegetable bins, ice boxes and refrigerators, both in the pantry and in the kitchen, are given a thorough cleansing at the end of each trip.

The most scrupulous care is given to insure the purest water for dining cars. Only filtered water is used and the reservoirs on the cars are properly scalded out by live steam at regular intervals. A report on the condition of each filter is received for each trip. Only the very best ice is used, and it is delivered to the cars in covered wagons and placed therein by men who use gloves and tongs in handling it.

All bread delivered to cars is wrapped in white waxed paper and is kept under cover in a special place provided for it. It is never taken from under cover until it is served and every service of bread is made with a clean, white napkin over it.

All porters are required to have their shoes polished at all times, to have their hands manicured and to be shaved daily. Also every employe of the department is required to undergo a rigid physical examination every six months by the company's physicians and any one disqualified is taken out of service.

All combs and brushes used on parlor and buffet cars are given a thorough cleaning every day and oftener if necessary, special individual toilet soap, wrapped in oil paper, is to be provided for all parlor cars.

Each car receives its fresh supply of linen, in a clean white linen sack, before each trip, and all linen used for parlor car chair backs and arms and the doilies for sofas are changed every day so that they are obsolutely clean at all times.

On arrival at terminal points the carpets in dining cars are thoroughly "blown out" by compressed air, the car is cleaned with suction cleaners, the ceiling and walls are given a thorough washing down, and everything possible is done to make them thoroughly fresh and clean before leaving the terminals. The same treatment is given parlor, cafe, and buffet cars.

The Value of a Locomotive

AN extremely interesting paper under the above title was read by Mr. G. S. Goodwin before the February meeting of the Western Railway Club. Taking the total revenues from transportation for the fiscal year ending June 30, 1913, and dividing this by the number of engines, Mr. Goodwin found that the daily gross earning power of an engine was $153, while applying to this figure the operating ratio, it was found that the average daily net earning power was $44. This, of course, included all classes of engines and it was pointed out that had it been possible to employ the freight engines in actual use and divide them into the freight earnings, the earning power would have been considerably higher.

In a more extended computation covering twenty-four Western roads, all classes of locomotive service, it was shown that the net average earning power of a locomotive on these roads varied from $30 to $125 per day and that the average for all roads was $54.24 per day. It should be remembered, however, that in this figure of $54.24 as with the $44 previously quoted, it was not possible to separate out engines which might be stored, hence, for the engines in actual service the figure would be higher. It was further pointed out that a locomotive capable of earning $75 per day on one road, might be able to earn only $40 per day on some other road, and this is further affected by the size of the engine, amount of work for it to do, etc.

An engine only earns money while moving freight and is unproductive when not working and in order to determine just how far freight engines traveled each day in productive work, Mr. Goodwin took from the reports of the Interstate Commerce Commission for twenty-four roads, data as to freight locomotive revenue miles and ascertained the miles per day an engine makes. While all freight engines are employed in producing the final figure, the results are rather startling as fifty-seven miles per day was the average work performed by each engine. Deducting eleven per cent for engines at shop, raised the mileage to about sixty-four miles per day, and taking out stored engines, raised the mileage still higher, but fifty-seven miles, nevertheless, remained as the average for all freight engines in regular service on these roads. In the following table, it was also shown just how a freight locomotive day is spent and the four hours in actual service readily accounts for the short distance traveled each day by this class of locomotive.

	Hours.	Minutes.	
An engine is in the hands of the Mechanical Department being made ready to move tonnage	12	57	53.9%
An engine is in the hands of the Transportation Department ready to move tonnage	6	47	28.3%
An engine is actually moving tonnage and therefore earning money, only	4	16	17.8%

Mr. Goodwin then turned to the question of what can be done to make the engine more available for handling tonnage. To quote directly from his paper:

"In discussing this problem I do not wish to be understood as taking the position that this feature has been neglected in the past. When one considers that the size of engines has practically doubled in the last 20 or 25 years, while the improvement in shop and round house facilities has by no means kept pace, the performance is a tribute to the mechanical officers.

"In the example of distribution of a locomotive day, the roundhouse is charged with 6 hours and 40 minutes or 28.4% of the day. This time is taken up in knocking out fire, putting in the house, inspection and repairs, washing boiler, wiping, building fire, etc., and either as the engine comes in or goes out it is coaled and watered. There are several items in connection with this work which suggest themselves as opportunities to reduce the time, for instance, we have changed the dump grates in a number of engines so that the clinkers could be gotten out easier. Poor ash pan design may easily become a vital factor in cleaning the fire. Then there is the turntable, is it up to date or when cold weather comes on does it get out of commission and require every laborer around the plant to help turn it, and then only at a snail's pace?

"When the engine is in the house a big factor in increasing the availability of an engine to handle tonnage is the hot water wash-out system. This is universally recognized by all and some of us have quite complete records as to just what saving the hot water wash-out system effects in boiler maintenance. It is the feature of boiler maintenance or rather the lack of boiler failures on the road that we are particularly concerned about in this connection.

"Good inspection is another item which if watched closely is bound to save failures on the road. Some lines have what is termed an inspection pit where an engine receives a thorough inspection. Sometimes the inspectors carry a supply of nuts and cotters so as to at once replace any of those missing. This pit is particularly handy where an engine is being given a quick turn and not time to put it on a roundhouse pit.

"Other features which might be mentioned are: Enough men in the roundhouse to do the work when needed. The old adage, 'A stitch in time saves nine,' is just as true in the roundhouse as in the tailor shop. Good facilities for doing the work, which should include a small machine shop adjacent to the roundhouse, equipped with drill press, shaper, lathe, bolt cutter and emery wheel, also a small, well-equipped tool room. This machine shop saves a lot of time running back and forth from the big shop. There ought also to be good air and steam pressure.

"Running repairs is charged with 2 hours, 41 minutes, or 11.2% of the day. Running repairs no doubt vary closely with the time an engine has been out of shop, and with the thought in mind of reducing the running repairs the road with which I am connected have reduced the mileage between shoppings. There have also been put into effect some changes in detail design, which in many cases eliminate entirely the running repairs. For instance, we cast a brass nub liner on the face of driving box. The result is that it is unnecessary to drop wheels between general repairs, and there is saved the cost of this work, which conservatively is $25 for labor and material, and engine out of service three days at $44 per day, or $132. A lesser saving as regards running repairs is made by the use of brass shoe and wedge liners on the driving box. The good effect of these comes out plainest during general repairs. We find them with the tool marks hardly worn out and it is therefore unnecessary to line up and plane the shoe and wedge.

"Another source of trouble is pounding of main driving boxes with its attending trouble in the rod brasses. This means dropping of wheels to repair brasses. It would seem that this work could be greatly minimized by the use of some form of removable brass, although we have no experience with these devices; we have, however, used the so-called long driving box with the result that the trouble was entirely eliminated, together with the advantages of the lesser bearing pressure and reduced wear on axle The cost to drop a pair of wheels and to crown the brass is approximately as follows: $23 labor and engine out of service three days.

"To minimize stay bolt trouble the practice of using same form of flexible stay throughout the breaking zone is a great aid. One of our boiler foremen estimated this alone to save one or two days every 60-day period.

"With the advent of the gas and electric welding outfits it has been possible to make many repairs that heretofore would not have been possible. Recently we had a Mikado engine with all driving wheel tires slid flat, the flat spots being two to five inches long and one eighth inch to one fourth inch deep. It would have cost not less than $150 to have dropped these wheels and turned the tires, this including the loss in tire material. To this must be added the loss incurred by having the engine out of service three or four days. We repaired these flat spots with the electric torch in five hours at a cost of $2.05 for labor and material and $5 for electric current. Both the gas and electric torch have been used successfully in this work. This is only a single example of what this device offers in the way of getting an engine into service promptly and at the same time at a greatly reduced cost of repairs. It should be an easy matter on the above showing alone for any railroad to justify the purchase of these outfits. Forty-four dollars saved for an engine day is interest at 5% per annum on $880, or save 20 engines one day you save $880.

"All roads have some form of report showing failure of engine parts. On our line this is tabulated under the different deail parts in a monthly report which shows the nature of the failure and the numbers of the engines making the failure. This is watched closely and when any particular class of engine shows repeated weakness in any particular detail, we go into that with a view to correct the design and overcome the trouble. Another thing insisted on by our general mechanical superintendent and which puts the man actively in touch with all phases of maintenance, is that the mechanical engineer spend at least one week of each month on the road.

"After the engine has made its mileage it, of course, gets a general overhauling, and whenever possible we make our engine candidates for shop pull a train to the point of shopping If it be assumed that an engine receives general repairs every 18 months and that 60 days is the average time from out of service to in service, that means that 11% of the engines are always in or awaiting the shop. Sixty days multiplied by $44 equals $2,640, the loss while engine is at the shop. Everyone knows there are ups and downs in traffic movement and during slack business when locomotives are not needed to move trains, it is obvious that we should put them through the shop to the extent that they are ready for the shop and that the shop can take care of them.

"While it is desirable to have a few engines in the 'bone yard,' so that 'lights' and 'heavies' can be properly sandwiched in, there can be a saving made by not having too many engines standing around idle waiting to get into the shop, but rather schedule their movement to the shop so that they are available with the least waste of engine time. An ideal condition would be more nearly realized when the condition of the engines slated to go to shop were such that one or two additional months in service, if necessary to suit the convenience of the shop, would not mean a series of failures.

"When an engine is about to go to shop, many roads (ours among them) make a practice of sending advance notice to the shop of just what material will be needed. On firebox work 30 days' advance notice is desirable, so that box will be ready to put in as soon as the old box can be cut out. To make the most of this plan of advance notice, the information must be accurate and be acted upon promptly, without waiting to get the engine in the yard to see if the material is *really* needed.

"After the engine reaches the shop what improvements can be made there with a view to cutting down the time in the shop? The first thought is modern shop facilities, and, considering that the average engine is worth $44 per day, it ought not to be difficult for any one to show substantial savings by the use of more modern shops. Assume a shop turning out 30 engines a month, or 360 per year, and that by making certain changes an engine could be turned out four days sooner. Assume further that for three months of the year there is sufficient business to provide work for these engines just as soon as they are turned out. The saving then will be 90 engines multiplied by four days, or 360 engine days, which at $44 per day equals $15,840. Now, if we had taken this $16,000 and purchased an engine with it, we would have had the same amount of available power, since by changing the shop we saved 360 engine days; but the modern shop will enable repairs to be made more cheaply, and, further, the capacity of the shop is increased 6.7%. Hence, it would be considerably more economical to modernize the shop. Of course, if this improvement can be made at less than the above, or the time saved is increased, the saving is increased proportionately.

"Another item which I understand some roads have to contend with is material. An engine is delayed for want of proper repair material, and this delay in some cases runs into months. It must not be understood that this is entirely the fault of the store department, as many times the material was not ordered as promptly as it might have been. On the other hand, the shop man has a perfect right to assume that certain kinds of material are kept in stock continuously by the stores.

"When one considers that the average engine is worth $44 per day during period of demand, it is a simple problem to figure out what lack of material means in engine delays. A great deal of this material for which engines are delayed is very moderate priced, so that no great valuation is involved, and, further, practically all material is common to several engines, particularly where there are a number of engines in a class, and this reduces the amount of stock necessary to carry in order to adequately protect the engine against delay. Too often the fact seems to be lost sight of that an engine is worth money, and the fact only is seen that there is so much money invested in stock, without regard to whether the equipment can be repaired promptly. This policy cannot be too strongly condemned, since both the mechanical and stores departments are working to the same end, i. e., to keep the engines in condition to earn revenue for the railroad. The question of suitable stock is a big one, and should be gone into carefully on each item by the store and mechanical departments jointly, since the mechanical department are better able to say what is the probable need for the different items of stock.

"While this paper has dealt particularly with what improvements the mechanical department can make in the engine performance, the study of the locomotive shows a remarkable opportunity for all concerned to aid in this work by co-operation. This includes all departments having anything to do with the movement of trains or the equipment necessary for the movement of trains.

"In conclusion, I have shown that the net earning capacity of a locomotive, taking the entire country over, is about $44 per day, and I have presented figures based on 24 representative roads, east and west, showing that the average freight mileage made per day is only 57.0, and that the rest of the day the engine is not earning any revenue. I have followed this up by a few suggestions as to how this time standing idle might be reduced, and it is this latter phase of the question which is now before you for discussion. If it be decided that these or other suggestions which will be brought out are effective in making the engine more efficient, then we will, having put these suggestions into force, be doing our share in making a little more perfect the performance of that grandest of machines—the locomotive."

A Conquest With Rails

By Richardson Wright, Author of "Through Siberia, An Empire in the Making."

In these times when the bulk of powers are fighting over territory by force of arms, it seems rather old-fashioned to speak of conquering by the power of a railroad, yet just such a conquest is Russia making to-day in her Far Eastern province of Amurland by throwing the Amur Railroad around North Manchuria. Although progress has been slow, the work has pushed forward against great odds for seven years, with the result that to-day virgin land is open to the commerce of the world whilst, at the same time, Russia's grip has been strengthened on a corner of territory that, in years to come, it will be well for her to control.

Manchuria is like a hump on China's back, its northern provinces, bounded for the major distance by the mighty Amur River, run up under the arm of Russian territory, an arm that reaches down the Pacific Coast to the nothern frontier of Japanese-controlled Korea. On this section Russia has always had her eye, but, despite efforts extending over several decades, has been unable to gather it unto herself as part of the great Slav Empire. In a word, Manchuria—and the northern provinces especially—have always stood in the road of the direct Russian advance to the Pacific.

There are at present two all-Russian routes to the "great ocean," as the Muscovite knows the Pacific: the Chinese Eastern Railway, which runs due east through the heart of Manchuria; and the steamer route around Manchuria, i. e., via the Shilka and Amur Rivers to Khabarovsk, the terminus of the Usurri Railroad which runs down the spine of the Maritime Provinces to Vladivostok, Russia's gigantic fortress-port opposite Japan.

To the reader these might seem sufficient avenues of transportation; for a matter of fact, both routes have their disadvantages. Thus, when one speaks of the Chinese Eastern Railroad as an "all-Russian" route, he must make the qualification that, whereas Russian capital owns it and Russian transportation supports it and Russian police see that brigands do not interfere with traffic, Russia actually lords it over but a small avenue of territory. She controls and polices the trackside land, maintains the whip hand in the city of Kharbin, originally acquired for a railroad executive center, and exercises the same function over the land bordering the branch line which extends south from Kharbin to Chang-Chung. At this point, according to the Treaty of Portsmouth, she hands control of the railroad and the railroad territory over to the Mikado's Government which, from that junction south to the terminals at Darien and Port Arthur, is represented by the South Manchurian Railway. Russia in the north is the Chinese Eastern Railway, Japan in the south, the S. M. R. Thus do the Powers thinly disguise themselves in the Far East!

Russia's influence, of course, extends many miles on either side of the permitted ribbon of railroad land, but that is to be expected. The railroad "police" is merely a convenient term to explain the presence of hundreds of Cossack troopers that ride hither and thither along the trackside paths and are ensconced in comfortable, sturdy-looking little forts at every mile or so along the way. Whenever anything unusual happens in that region—such as plague or flood or a famine—Russia sends out more troops to handle the situation. They are never brought back. No one cares, however, for Japan does the same in the south, and thus is the power balanced.

Owning this railroad through the heart of Manchuria might seem sufficient to clinch Russian control over the northern provinces. The distances between the railroad and the Amur, however, are greater than they appear on the map. Valuable timber land is there, reaches of fertile soil, and ridge upon ridge of mountains whose wealth it is impossible to even surmise. This northern section will eventually come under the Russian double eagle, but before that is accomplished, many things have to happen, not the least of which is the complete Russiafying of Amurland and the Maritime Provinces, the accomplishment of which will be greatly enhanced when the Amur Railroad is opened to traffic.

Singularly enough, the line of the new Amur Railroad follows the course that was originally intended for the Trans-Siberian. At Stretensk in Trans-Baikalia ,the old line comes to an abrupt stop at the base of a big hill. By the time the rails were laid thus far, bankers in St. Petersburg had effected the coup with China that made possible the building of the Chinese Eastern Railway, so that at this precipitous cliff, the Trans-Siberian was permitted to stop. In the years that followed Russia's dream of taking South Manchuria was rudely shattered. She was dealt a wicked blow by the Japanese and her sphere of railroad influence shoved 160 miles up the Liaotung Peninsula to Chang-Chun. It was evident then to the Muscovite masters of empire that Russia must follow her original strategic line: continue the Trans-Siberian through all-Russian territory to the Pacific. Moreover, there were economic reasons why this must be done: for a decade she had been directing the tide of Siberian emigration toward the Amur Valley. Thousands upon thousands of settlers had gone out and made homes both along the valley and in the fertile lands beyond it. Little villages became prosperous centers of industry, and wilderness spots blossomed with villages. The hinterlands were being opened for gold from the Zeya and Boureya valleys and timber from the hillsides that range the river. In short, the region demanded some avenue of transportation other than that afforded by the Amur River which is frozen six months out of the year, and the other six so full of shifting shoals as to make steamer passage precarious and slow.

In 1907 then, the Amur Railroad became a reality on paper. Between that date and the present an army of fifty thousand laborers and engineers have been toiling to make the railroad on paper a reality on rails.

Roughly, the trunk line was to follow the course of the Amur, from a point west of Stretensk to Khabarovsk where the Amur turns northward to seek its Pacific outlet at Nikolaisvsk. For obvious strategic and commercial reasons, it was plotted 200 miles inland, provision being made for six branch lines to the important centers along the river. In August, 1914, imperial sanction was granted for the extension of the trunk line to Nikolaievsk which will thereby be developed as a port for the great fur, timber and gold traffic of the eastern Yakutsk Province and of Kamchatka. In the same month permission was granted by the Chinese Government for a line to extend south from Aigun on the Amur (lying forty miles down stream from Blagowestchensk, the largest city on the river) to Kharbin.

The original line, together with the branches is 1,256 miles long; with the Nikolaievsk extension another 500 miles, and fully 400 more for the cross-country line to Kharbin. We are here concerned only with the line as originally proposed, for that is now practically completed whereas the two extensions will not be built for another ten years. This main line is divided into the following sections:

Head (Kwenga to Ourium, including a branch line connecting Stretensk with Kwenga) 120 miles; Western, (Ourium to Kerak) 395 miles; Middle (Kerak to Boureya) 423 miles; Eastern (Boureya to Khabarovsk) 318 miles.

Work was begun on the head section in 1907 and toward the end of 1910 was opened for traffic although not until the present year could the permanent way be said to be in a finished or satisfactory state.

Preparatory work was started on the western section in the autumn of 1908 and continued with interruptions till last winter saw it sufficiently completed to permit the passage of construction traffic.

The middle section was started in 1910 and is still under way. Meantime work was started on the eastern division, although not until after prolonged survey was a satisfactory line definitely fixed. This division should approach completion in 1915.

During the past three years work has continued on all the divisions. Of the branch lines, four are already completed, the longest being that to Blagowestchensk, sixty-nine miles.

Officials admit that the work has advanced much more slowly than was anticipated, which has thrown the entire schedule out of calculation. For the transportation of construction materials and supplies, the engineers have depended upon the Amur River. Unfortunately that stream had a habit of drying up in midsummer so that heavily ladened boats can scarcely make the passage; when the floods do come, they are so violent as to prohibit traffic.

From the start the work of the engineers has been obstructed by natural disadvantages. Vast areas of the country to be traversed lay within the region of perennial frost where the ground is frozen from 200 to 300 feet down. This *marj*, as the soil is known, consists of a sticky elastic clay that never thaws to a depth of more than three feet; on the surface it is covered with coarse grass or scrubby vegetation. When the rains of early summer fall, the water cannot run off but is retained by the peculiar nature of the ground. The men therefore have to work in from two to three fet of ice-cold quagmire, standing all the while on the frozen subsoil which the heat of the sun continued to thaw as they went deeper. Rheumatism and all the kindred complaints attacked the men who worked in this soil. After experiments ranging over the seasons, it was discovered that winter was the best time to handle the *marj* as recourse could then be had to blasting.

While mentioning the difficulties faced by the workmen, it should not be forgotten that the line runs through a region where in winter the temperature drops to 60° below and the rivers freeze solid; and in summer, rises to 93° above in the shade.*

To add to the workmen's woes, the land in summer is infested with mosquitoes and horse-flies, and the men have been obliged to wear mosquito helmets and gloves.

In addition to the natural difficulties have been economic troubles. Up to 1910 the building of the various divisons of the line was let out to contractors who received advances anr had to find their own men, provisions and supplies. As the section through which the greater part of the railroad was laid is but sparsely settled, laborers had to be transported from European Russia. The rule to exclude Chinese labor was rigidily adhered to, and the men, knowing that they were the only ones available, caused trouble by making their own, often-unreasonable demands. In many instances workmen deserted by the wholesale. The climate and labor were found to be more difficult than anticipated, and the cost of food and other necessities extremely high. Moreover there were attractions that lured away hundreds—trade with the Chinese in contraband spirits, a well developed industry along the Amur, and the fabulous sums related to be found in the gold fields nearby. The summer of 1910 saw many desertions due to the unearthing of a small gold pocket in one of the excavations, emboldened by this, the laborers threw up their construction jobs and went off to wash gold in the Zeya and Boureya fields to the north The upshot of these economic disturbances was that in 1910 no contractor was willing to undertake the work and the Government was obliged to finish the middle and eastern sections under the direction of its own engineers.

There are some notable engineering feats that when completed will stand among the first of the world and far overshadow the reputation Russian engineers won by the line they built several years back around the south end of Lake Baikal. As on that division of the Trans-Siberian, so here, tunnels are to be liberally used. In the eastern section there are eight with a total length of four miles, one of them nearly a mile in length to pierce the watershed between the Ouril and Mutriaya rivers. In the western division is another of the same length. Skilful plotting throughout has made possible the avoidance along the entire line of gradients exceeding .008 and curves with radii of less than 350 yards.

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*While camping along the Amur in April, the author recorded daily changes of 80 degrees of temperature between 4 A. M. and 1 P. M.

The greatest engineering problems of all will be in bridging the Amur at Khabarovsk, and of the Zeya at the new town of Alexeievsk, where will be established the headquarters and repair shops for the new railroad.* In the latter instance a tunnel may be substituted for the bridge as the difficulties are great. At Khabarovsk, the Amur broadens; the right bank is high whereas the left is a low mud flat bordering a wide reach of marsh. Extensive approach works will be necessary, the estimated cost of which is from 18,000,000 to 20,000,000 roubles ($9,000,000-$10,000,000). A law fixes the cost of construction on the eastern section at $37,000,000, so it can be seen of what importance to the ultimate success of the road is this bridge.

The strategic results of this line when it shall have been opened to traffic have already been mentioned, the benefits that will obviously accrue to the commerce of the region are many, and can be sketched only in broad lines. As was stated above, the Amur, Zeya and Boureya valleys have all been settled to a greater or less degree, and the tide of emigration is increasing as the central parts of Siberia become crowded. As yet, the Russians form only 53 per cent of the population in the districts covered by the new Amur line, the remainder being native tribes, Chinese and Koreans. These valleys are very fertile, and along the latter are located some of the richest gold fields in Siberia. The "placers" in that region have averaged for the past five years an output valued at $3,046,650, and this official figure by no means represents the total production. The country through which the western and eastern sections run is wild and apparently unpromising, yet it is believed to contain rich mineral deposits. In the entire region there is still undeveloped forest lands amounting to 509,000,000 acres. Already Australian and Norwegian firms, encouraged by the building of the line, have invested capital in the timber lands back of the Amur.

The central section, in addition to including the Zeya and Boureya gold fields has the city of Blagowestchensk, generally recalled in connection with a lamentable affair in 1900 when 5,000 Chinese were driven out of town and drowned in the swirling waters of the Amur. Since then the town has striven by the growth of its commerce to wipe out the blot. Unless the plans to run the railroad south to Kharbin miscarry, Blagowestchensk should be among the first cities of Siberia to-morrow. As it is, it is the prettiest from the point of municipal beauty. With a mingled population of merchants, Chinese, miners, chansonettes, soldiers—of which there are 40,000 in town at times—and a handful of Germans, British and Americans, Blagowestchensk can boast quite a cosmopolitan atmosphere. As the president of the Russo-Asiatic Bank told the outhor, Blagowestchensk awaits but the railroad to take a big boom, then it could well deserve the name given it by travelers, "The New York of Siberia."

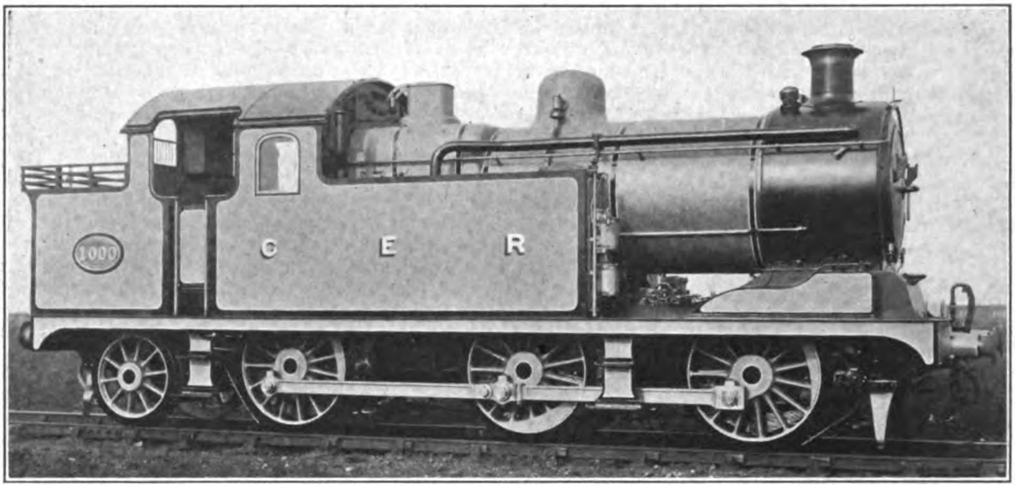
In the face of recent developments in the Far East—the Japanese attack on German's *quartier*, it can be said with an unquestioned degree of certainty that Manchuria is left to the ultimate division by Japan and Russia, with Russia strengthened for her move by the railroad now, nearing completion, that tightens her grip around the shoulder of the northern provinces.

***Speaking of repair shops it might interest those who think of Siberia as a wolf-ridden wilderness of snow and ice to learn that the central repair and erection shops of the Trans-Siberian at Omsk employ 12,000 men.**

Railway Developments In Great Britain

By Thomas Reece.

THE railway development in the United Kingdom is not being particularly held up by the war although, of course, the drain of men into the new armies is felt on the railways, as in all the other big industries. All the great locomotive sheds and railway works report large numbers of men as having joined the British army, although of late the tendency has been for the Government itself to seek to check this enlistment in view of the great need for keeping the supply of trained mechanics in this country for what one might call indirect war purposes. The proper operation of the railroads is one of these, whilst, furthermore, many of the highly skilled machine shop workers can be also used for the production of direct war material By an amendment to the new Defence of the Realm Act the Government now has power to take over any privately owned works in the country that can be used at once or shortly adapted for the production of munitions of war. We may expect to see, therefore, numbers of the trained railroad mechanics shortly employed upon the production of shells, rifle barrels, and similar goods, besides, of course, being employed upon the replacement of locomotives and railway material used up in the fighting. At the same time there is a good deal of the straight railroad work proceeding. Locomotive Superintendent A. J. Hill, of the Great Eastern Railway, has very kindly provided me with some interesting news relative to recent developments upon his service, which have resulted in the production of the first Great Eastern 0-6-2 tank engine. I give a photograph of this design of Mr. Hill's. Before describing it a few preliminary notes on Great Eastern developments may very well lead up to current movements. The Great Eastern Railway is one of the important trunk lines of this country, having its terminus in London at Liverpool street, where it occupies eighteen platforms and twenty roads,



ENGLISH TANK ENGINE, GREAT EASTERN RAILWAY.

altogether sixteen acres. The company owns directly 1,107 miles, besides having shares in other tracks. Like most English railways it has grown from very small beginnings, dating back to the forties. Since 1899, when the first Great Eastern bogie suburban train appeared, great strides have been made in the matter of the carriage stock for London local and semi-suburban traffic. That train was built to widened dimensions hitherto unknown on our railways, and two years later a commencement was made with the unique work of widening the existing suburban coaches, thereby materially increasing their seating accommodation, whilst all new stock was and continued to be, constructed as wide carriages. By 1911 the bogie carriage had fully established itself as the standard design for new construction, and since that year all new coaches have been long vehicles mounted on two four-wheeled bogies. Moreover, a considerable number of the wide stock now running on two axles will ultimately be converted to the bogie type by fixing two bodies on one bogie underframe. We may, therefore, anticipate a time when virtually the whole suburban stock will consist of wide and long bogie carriages built up on almost homogenous lines. The actual number of vehicles will, of course, be less than now, but the carrying capacity will, on the whole, be appreciably increased. The alteration will, however, have been made at considerable expense in the matter of weight to be hauled. The weight of a typical suburban train of 1899, with every seat occupied, came out at 186 tons (of 2,240 pounds each); to-day, in similar circumstances the figure is 296 tons, an increase of nearly 60 per cent And all the time the need for rapid acceleration from rest and for an ample reserve of hauling capacity in the engines has, to say the least of it, been unfailingly insistent. Hence, the many steps which have been taken to enhance the power of the existing types of engines for this suburban traffic; hence, the new six-coupled tank engine shown in the plate.

The locomotive I illustrate, No. 1000, is a novelty for the Great Eastern Railway in that it has a 0-6-2 wheel arrangement. Compared with the 2-4-2 engines at present so largely used on the suburban services it shows a considerable advance in power. The boiler is much larger, being 7 inches more in diameter; the cylinders are half an inch greater in bore, and the diameter of the coupled wheels is 6 inches less. The result is a considerably increased tractive effort even when comparison is made with such of the four-coupled tanks as possess boilers with a working pressure of 180 pounds per square inch. Moreover, the adhesive power is, of course, much greater.

The traversing of curves is facilitated by three quarters of an inch of side play allowed the leading pair of wheels and the provision of radial boxes for the trailing axle. Nine-inch piston valves with inside admission are employed, actuated by Walschaerts gear. Shifting valves are provided to destroy the vacuum in the cylinders when the engine is "coasting." Reference to the photograph will show these fixed on the outside of the smokebox, and also the top feed with clack in the dome, the Ross six-feed mechanical lubricator, and other special points of interest.

These are the engine's principal dimensions:

Boiler: Telescopic barrel, Belpaire firebox—
  Length of barrel, 9 feet 7 inches
  Internal diameter, 4 ft. 7 in. and 4 ft. 8 in.
  Inside firebox—
    Length, inside, 5 ft. 3¾ in.
    Width, inside, 3 ft. 4¼ in.
    Area of firegrate, 17.7 sq. ft.
  Firebox shell—
    Length, outside, 6 ft.
    Width, outside, 4 ft. ½ in.
  Working pressure, 180 pounds per sq. in.
  Heating surface—
    282 tubes of 1¾ in. external diameter and 9 ft. 11 in. between plates, equaling 1281.2 sq. ft.
  Firebox, 113 sq. ft.
    Total, 1394.2 sq. ft.
Cylinders, 18 in. by 24 in.
Diameter of wheels—
  coupled, 4 ft. 10 in.
  trailing, 3 ft. 9 in.
Wheelbase—
  Leading to driving, 7 ft. 6 in.
  Driving to rear-coupled, 8 ft. 9 in.
  rear-coupled to trailing, 6 ft. 9 in.
    Total, 23 ft.

Coupled, 16 ft. 3 in.
Length over buffers, 34 ft. 10 in.
Capacity of water tanks, 1,600 gallons.
Capacity of coal bunker, 3¼ tons.

Weights in working order—
On leading wheels, 35,616 pounds.
On driving wheels, 39,760 pounds.
On rear-coupled wheels, 34,888 pounds.
On trailing wheels, 27,720 pounds
On coupled wheels, 110,264 pounds
Total, 137,984 pounds
Tractive effort, 19,788 pounds
And adhesion, 25,006 pounds

It may interest readers to know that it is intended to run the engine in the color adopted for photographic purposes, that is, lead color, with white borders, black lines. This, varnished with the usual vermillion for buffer beam and side rods, and other customary finish, is to many eyes a most striking and effective locomotive livery.

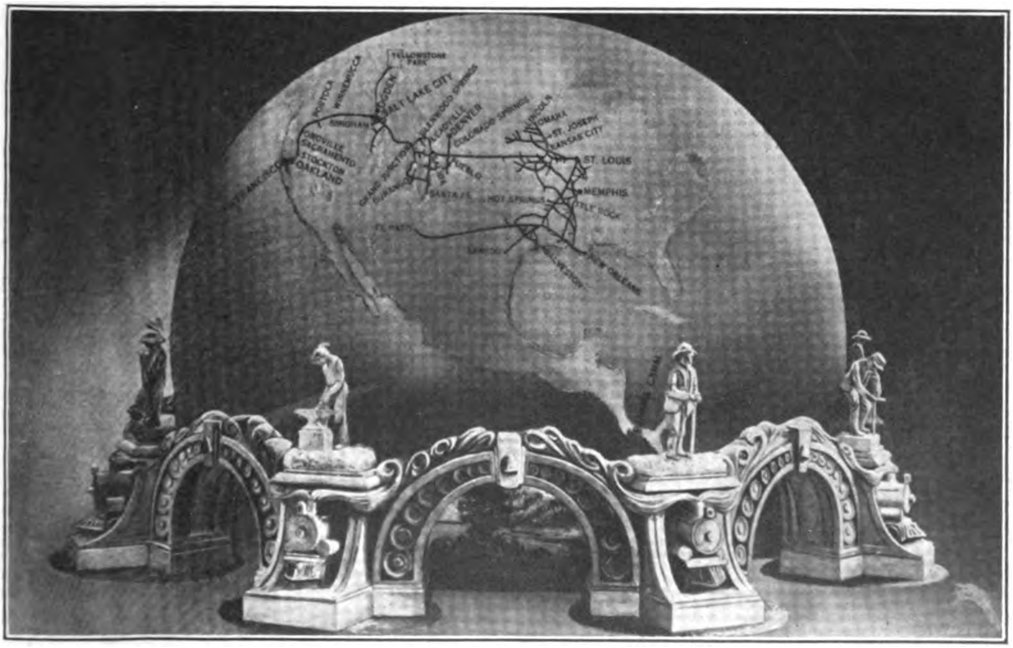
Another engine of the same class, No. 1001, has been built. This, unlike No. 1000, is a superheater locomotive, the apparatus adopted being the Robinson. Here is another novelty for the Great Eastern Railway, as previously no tank engine has been provided with a superheating installation. Opportunity is thus afforded for some instructive comparisons with respect to performance on extremely arduous duty on short runs with frequent stops.

Comprehensive Exhibits by Railroad Companies at the Panama-Pacific International Exposition

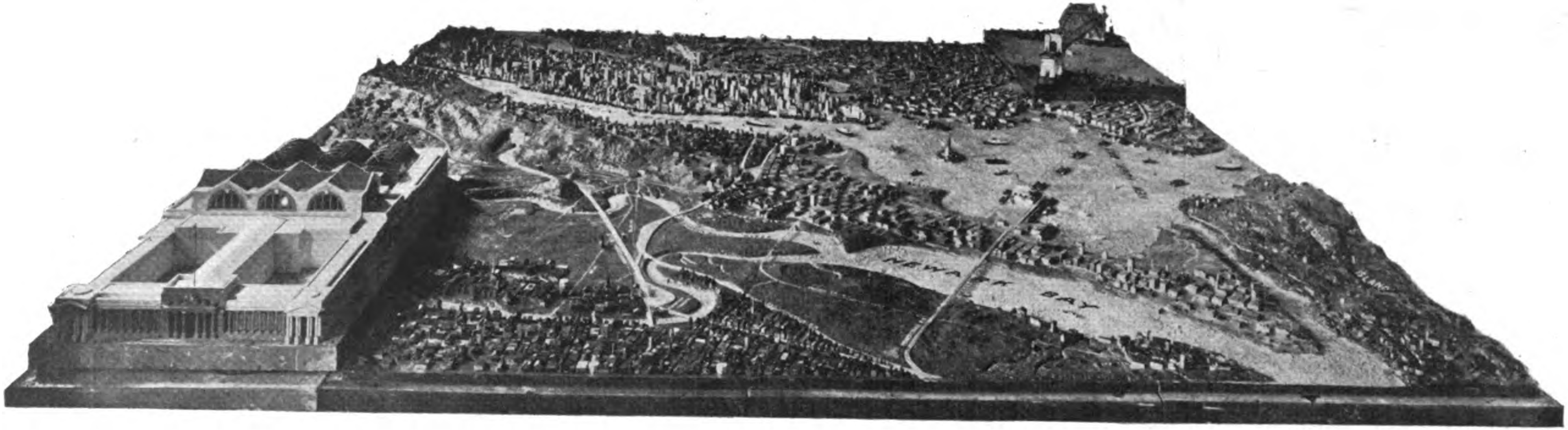
By ARTHUR A. WILLOUGHBY.

GREAT credit is due the large railroad systems of the country who have given to the Panama-Pacific International Exposition a series of wonderful displays to charm the visitor as well as proving of great educational value. All forms of modern rolling stock, locomotives, cars, samples of shop practice, modern roadbeds, are among the practical features found in the exhibits in the Palace of Transportation. Eight transcontinental systems and one California system have arranged exhibits under the supervision of Blythe H. Henderson, chief of transportation exhibits.

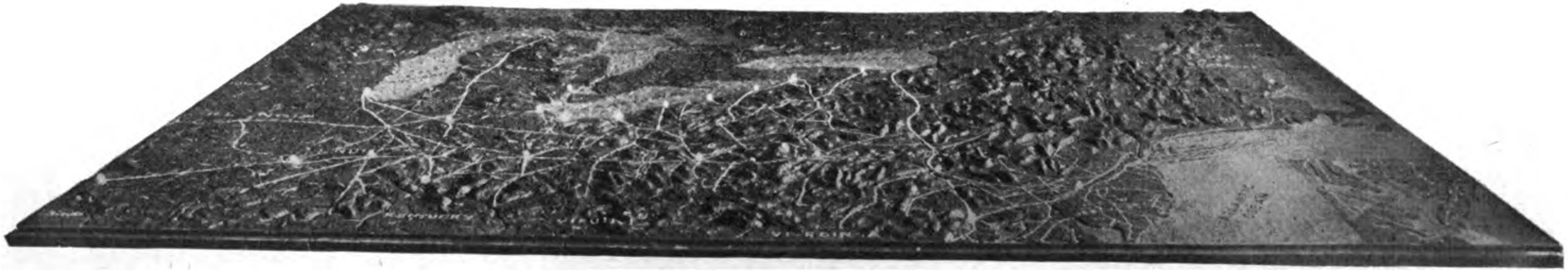
It is in the reproduction of two of nature's mightiest works and entailing expenditures of over half a million dollars that a new epoch in railroad exhibits has been ushered in. The reproduction of the Grand Canyon of Arizona by the Santa Fe and Yellowstone Park by the Union Pacific in the amusement concessions district have cost upwards of $400,000 each and are of the costliest exhibits ever assembled by a railroad company for exposition purposes. The exhibits made by the Pennsylvania Railroad, Southern Pacific, Gould Lines, Hill Lines, Canadian Pacific, Grand Trunk and the McCloud River Railroad have a great educational value in giving to the public something of the inside workings of the great transcontinental carriers of to-day, some idea of the country through which they pass and the products from their territory.



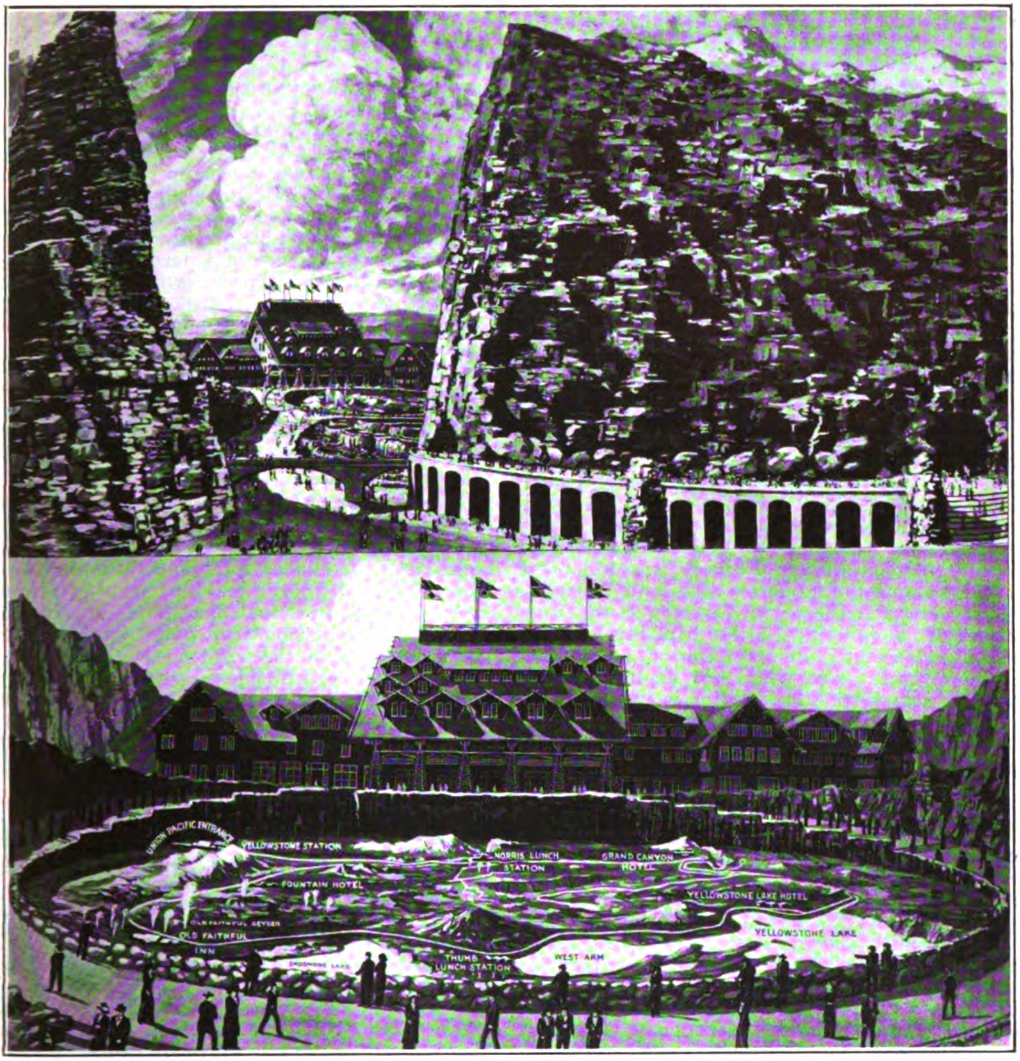
THE NOVEL EXHIBIT OF THE DENVER AND RIO GRANDE AT THE PANAMA-PACIFIC INTERNATIONAL EXPOSITION.



Model of New York City and its Surroundings to be Exhibited by the Pennsylvania Railroad at the Panama-Pacific International Exposition. This Model is 26 Feet Square and is a Faithful Reproduction of the Nation's Greatest City Including its Wonderful Harbor and Surrounding Territory. On Diagonal Corners are Shown Reproductions of the Pennsylvania Station in New York City and the Hell Gate Bridge.



Relief Map of the Pennsylvania System to be Exhibited at the Panama-Pacific International Exposition. This Map is 42 x 26 feet and Took Two Engineers Three Months to Lay Out the Proper Drawing Showing the Entire System, Cities, Mountains and Lakes. This Drawing was Used as the Basis for the Construction of the Relief Map Which Required the Services of Cabinet Makers, Modelers, Painters, etc., Working for a Number of Months Under the General Directions of Henry Kabierske of Philadelphia.



UNION PACIFIC SYSTEM'S EXHIBIT AT THE PANAMA-PACIFIC INTERNATIONAL EXPOSITION. IT CONSISTS OF A MINIATURE REPRODUCTION OF YELLOWSTONE PARK AND OCCUPIES FOUR ACRES OF GROUND. OLD FAITHFUL AND SOME OF THE OTHER PROMINENT GEYSERS ARE SHOWN IN FREQUENT ERUPTIONS, WHILE AN ACCURATE REPRODUCTION OF OLD FAITHFUL INN APPEARS IN THE BACKGROUND.

The exhibits possess a peculiar significance for the railroad man from an educational standpoint. The numerous types of equipment, a few being of an early date, for the handling of every form of traffic from logging to the finest passenger service, will command favorable attention. The exhibits represent every section of the United States and Canada. Nearly all exhibits have motion pictures which depict various branches of railroad service in an interesting and practical way.

ATCHISON, TOPEKA AND SANTA FE RAILWAY.

To reproduce the Grand Canyon on a scale that would give some idea of the magnitude, wondrous coloring and the main points of interest, has been a three years' task on the part of W. F. Sesser who prepared the plans and specifications and personally superintended the installation of the exhibit which covers six acres.

The gorge which is more than 200 miles long, is fifteen miles from rim to rim at its widest point and is a mile and a half deep in places. Over one hundred miles have been reproduced, faithful to scale and in all the colorings for which the Canyon is famous. The white and blue limestones, red sandstones and bottom gorges of granite in deep purple hues and the weird, fantastic shapes of every description, form a magnificent, spectacular combination. The foreground of cacti, old trees, rocks and all the material forming the rim, is of original material brought from the Canyon. The effect of great distance in the background is effected by paintings. Parlor cars are operated on a trestle along the rim by electricity to carry the spectators, the trip lasting half an hour.

Tribes of Indians made up of Pueblos, Navajos, Hopis, Zunis, Supais and Acomas are housed about the roof of the structure and are seen at their ordinary daily pursuits. Blanket and basket weaving and pottery making will prove of interest. The Fred Harvey Company, well known to Santa Fe patrons, occupy the west wing with one of the greatest displays of Indian blankets and rugs ever assembled. The east wing is given over to the Daughters of the American Revolution for an Exposition headquarters.

Union Pacific System.

The reproduction of Yellowstone Park covers four acres of ground. The topographical map which occupies an acre in the center of the space is the largest one ever built and portrays accurately to scale the general contour lines of the Park and the principal points of interest. Old Faithful and some of the other prominent geysers are shown in frequent eruptions.

Flanking the main entrance is seen Eagle Nest Rock on the left and Bunsen Peak at the right with the Golden Gate viaduct spanning the entrance. Old Faithful Inn appears in the background while the other outside portions of the exhibit appear in mountainous effect. Yellowstone Falls is seen on Bunsen Peak in an 80-foot fall of water down the mountain side with the water flowing over the Cleopatra Terraces in the foreground of the exhibit. Old Faithful Inn has been reproduced exactly in its exterior appearance. The interior is given over to a de luxe restaurant. A searchlight on the roof is used at night for spectacular displays in connection with the geysers. The Yellowstone Trail is a series of tunnels in the side walls of the exhibit in which transparencies, panoramas and scenic effects are used to show various points of interest.

Under Bunsen Peak has been constructed a spectatorium with a motion picture theater. Motion pictures of the Park are shown and are explained by a lecturer. The curtain rises and a realistic scene of Old Faithful geyser erupting to a height of thirty feet is noted. Other scenes of the Park as they appear from the porch of the Inn in daylight and night time moonlight settings are shown. A free rest room for the public has been fitted up in the front portion of the exhibit space.

The work of planning and installing the exhibit has been under the personal supervision of J. R. Kathrens.

Pennsylvania System.

The intent of Mr. H. T. Wilkins who has supervised the installation of two previous exhibits for expositions, has been to make the exhibit largely educational in character. The exhibit space adjoins the Rotunda of the Palace of Transportation. In addition to a number of models, there is a movie theater made up of the interiors of two steel passenger coaches standing on adjoining tracks and with the inner walls removed so as to make one room.

Photographic transparencies are used in the windows, there being the official seal of each one of the fifteen states represented in the company's territory appearing in the window spaces together with some familiar scene from that state, making a unique display. There are over 20,000 feet of film taken at various points over the system, from the open end of a car pushed by a locomotive. They show the density of population, various industries and traffic scenes along the line. Something is shown in motion in every foot of film and everything is true to life without any stage or scenarios being used. The films luckily escaped twice from being destroyed by fire while in the possession of the Edison Company by whom they were taken. Tickets to the theather are issued to visitors and taken up by the conductor, uniformed as a conductor.

There are six models in the exhibit representing a great deal of time and study. The model of New York City is 26 feet square and the principal buildings can easily be recognized. The various bridges and lines of transportation are clearly shown. A model of the Pennsylvania station and one of Hell Gate bridge will attract interest. A model shows the proposed Union station at Chicago and another the Union station at Washington. The topographical map of the territory embraced by the Pennsylvania system is of particular interest and was constructed by Henry Kabierske, of Philadelphia.

The railings surrounding the exhibit space and the models are of the standard design, of which the company has 150 miles in use. Standard block signals of the upper quadrant type and a new form of fixed light signal just coming into use, are shown as in actual operation. Engine 38, a Westinghouse locomotive, which has seen three years' service in the Hudson River tunnels, is mounted on a turntable in the rotunda of the building and is slowly revolved. It sets twelve feet above the floor and makes a spectacular feature.

Southern Pacific Company.

Probably one of the most interesting features in the exhibit is a blending of the old and new in railroading. The "C. P. Huntington," one of the sole survivors of the first six "locomotives" put in use by the Central Pacific in 1863, is shown on a modern piece of rock ballasted roadbed. The engine is but 25 feet long over all, has two drivers and a tender built integral with the engine. On an adjoining track is one of the monster consolidation Mallet compound locomotives used in hauling trains over the same division to-day as the little engine did fifty years ago. It is a forceful reminder of the strides made in handling traffic in that stretch of time.

A standard type of engine with cut-away sections, mounted on rollers and electrically operated so as to show the operations of the various working parts, is a new wrinkle which will appeal to the railroad man. The smoke arch is cut away nearly to the top of the cylinder saddle to give a view of the steam pipes, petticoat pipes and front end arrangement. There is a cut down through the center line of the dome, throttle valve and standpipe and through the third course removing the shell plate down to the throat sheet flange, giving a clear view of the water tubes, staying on water-leg and on top. A cut is made through the steam chest, valve and a portion of the cylinder, three inches off center to show the piston and valve action. The sectional work was done in the Sacramento shops of the company.

The interurban service of the company in the San Francisco trans-bay territory is one of the finest examples of electrification of steam road service anywhere. Upwards of 15,000,000 passengers a year are carried. One of the steel cars used in the service and which has the largest carrying capacity of any built, is exhibited. It seats 116 passengers. Other cars exhibited are a single sheathed steel frame automobile car, single sheathed steel frame box car, double sheathed box car and a steel frame Pullman box car. The first steel passenger coach in the United States which was built in the Sacramento shops in 1906 is shown. The engine which is used on the waterfront to furnish steam and smoke for spectacular illuminating effects in connection with the large searchlight scintillator, is of the Atlantic 4-4-2 piston valve type and was built by the American Locomotive Works in accordance with standard Southern Pacific design. Several other types of locomotives are shown. A Sunset motion picture therafter is housed in the building erected by the company for its offices.

W. R. Scott, vice-president and general manager of the Southern Pacific Company, has had general supervision of the exhibit.

GOULD LINES.

In point of architectural design and beauty, the exhibit of the Gould Lines composed of the Denver and Rio Grande, Western Pacific, Missouri Pacific and the St. Louis, Iron Mountain and Southern, is a striking one. The exterior appears as a huge globe carrying a relief map of the United States and showing the locations of the various lines and the principal points of interest. Electric flashes give a realistic appearance of a train traveling from San Francisco to St. Louis. The globe is supported by six arches, car wheels appearing in relief on the arches and the underside of each arch as a ballasted piece of track. The front of a modern locomotive is set between each arch and above each is placed a statue, eight feet high, one figure being that of a miner, another a farmer, a fisherman, a brakeman and a blacksmith.

Behind each archway is a beautifully colored model depicting some scene in a journey from San Francisco eastward. Waterfalls, canyons, mountains, manufacturing and agricultural industries and cities are realistically shown. Each model is twelve feet long and set in a shell with a background of rippling waves and cloud effects.

Inside the globe is a second story, above which appears a sky effect in cerulean blue with a crescent moon, twinkling stars and drifting clouds electrically produced. On the top of the annex is a scenic reproduction of Marshall Pass in Colorado, 58 feet long. On the walls of the annex are colored panels in relief showing typical river canyon scenes.

The entire exhibit was designed by and installed under the supervision of F. B. Fulton, of Denver.

HILL LINES.

A pavilion was erected on the Marina to house the exhibits of the Great Northern and Northern Pacific. The pavilion is divided into two sections, one to picture Glacier National Park and the other is an agricultural exhibit of products from St. Paul to the Coast. Over one hundred beautiful colored transparencies, costing $15,000 show views in the Park and in the motion picture theater, other scenes are shown. Eight Blackfeet Indians from the Park, each a chief of a tribe and headed by Chief Many-Tail Feathers, 92 years of age, have taken up their residence at the exhibit for the Exposition and will add no little interest. The Hill Lines have now established connections with San Francisco through two new 18,000-ton steamships which make the trip between Oregon and San Francisco in twenty-four hours.

GRAND TRUNK AND GRAND TRUNK PACIFIC.

An attractive exhibit is arranged in a pavilion on the Marina. One of the interesting features is a frieze consisting of a series of twelve pictures in tapestry effect, made of grains, grasses, clover, brome grass, seed grains, root seeds and hearts of wheat kernels. Numerous bromide enlargements picture scenes along the line and various resources. A relief map shows the section of the Canadian Rockies traversed by the company, including Jasper Park and Mt. Robson Park. The collection of game heads is of especial interest and includes a seven-point Wapiti, buffalo, sheep mountain goat, moose, caribou, black tail and red deer, antelope and musk ox. Various ores are displayed as also fruits from British Columbia. A motion picture theater is an interesting feature.

CANADIAN PACIFIC COMPANY.

The exhibit consists of agricultural products and many natural resources found in the territory between Halifax on the Atlantic Coast and Vancouver on the Pacific and is housed in a pavilion. A model of the company's dam on the Bow River at Bassano, Alberta, which cost in the neighborhood of $7,000,000 and which is used in the irrigation of 1,500,000 acres of semi-arid land in southern Alberta, is of particular interest. Five other mechanical models featuring the irrigation of a demonstration farm, an irrigation system of 3,000,000 acres, a passenger train passing through a field of grain, a passenger train in the heart of the Rockies and a steamer entering the harbor at Quebec will attract a great deal of attention. A natural forest scene with numerous mounted specimens of wild animal life is shown.

McCLOUD RIVER RAILROAD COMPANY.

A model logging train consisting of a standard logging locomotive designed for heavy gradients and sharp curves, cars of pine logs ready for the mill, a box car and caboose make up a train shown by the McCloud Company which operates at the base of Mt. Shasta in Siskiyou county, California.

A fully equipped railway system operating nearly three miles of track inside the Exposition grounds will attract a great deal of attention from railroad men. It is an intramural system but of a different type than that usually seen. The track, is 19-inch gauge, double track and rock ballasted. The locomotives which are of the Pacific type, are 25 feet long over all and stand five and a half feet high and are exact reproductions in every detail. A regular train dispatching system is employed and block signals. A complete construction and repair train is kept in service.

The Social Problem in the General Office

By ROBERT M. VAN SANT, EDITOR OF THE BALTIMORE AND OHIO EMPLOYES' MAGAZINE.

LAST October a few of the Baltimore employes of the Baltimore and Ohio Railroad who enjoyed male chorus work, got together and formed the Baltimore and Ohio Glee Club. At the outset the Club was fortunate in three ways. First, it had the good will and wishes of the officers of the company, largely because it was understood that it was to be self-supporting. Second, it succeeded in getting the services of an able and magnetic conductor in the person of Mr. Hobart Smock. And third, through the courtesy of the Baltimore Y. M. C. A. it secured the use, without cost, of the fine assembly room in the Y. M. C. A. building for rehearsals These have been held almost every Monday night since the organization, and the improvement in the quality of the singing has been very gratifying It is hardly necessary to say that like most musical clubs, this one has had its time of adversity, but the faithful few who constituted a strong nucleus during the discouraging first few weeks, are now being rewarded by seeing and belonging to a strong and enthusiastic body of over fifty men.

Experienced singers are few, the thought having been not so much to attract trained voices from other musical bodies as to provide a way whereby men with untrained voices could get together in a social and informal manner and give expression to their fondness for singig. So that most of the fellows joined because they "liked to sing." The democracy of song and music is literally exemplified in the organization, the ages of the members running, for instance, all the way from eighteen to over seventy. In fact, one of the half dozen members who has been present at every rehearsal, is the oldest member, Mr. E. L. McCahan, a veteran Baltimore and Ohio employe who is still in active service as engine dispatcher at the Baltimore Riverside yord of the company. Again, over twenty departments are represented, the mere naming of which not only shows that the Club is a real social democracy, but also suggests the enormous ramifications of a railroad organization. Telegraphers, private secretaries, auditing clerks, air brake experts, freight handlers and clerks, vocational specialists, engineers in the testing department, printers and proof readers, railroad policemen and detectives, engine erectors and repairmen, motive power maintainers, wreck experts, car service and record clerks, engine dispatchers, tool makers, students of fuel economy, claim clerks, grain weighers, publicity men and doctors, all these certainly suggest a cosmopolitan array of vocations, and one that could scarcely be duplicated by the employes of any business organization of less scope and magnitude than a great trunk line railroad.

In the prospectus issued at the time of the organization, it was stated that the purposes of the Club would be, "to stimulate interest in good music, to provide healthful and cultural recreation for the members and their friends, and to promote sociability and good fellowship." Not a member would fail to register his vigorous affirmative if asked if these ends have been realized. The class of music studied does not, to be sure, represent the finest glee club selections available, but with such numbers in the repertoire as "Mammy's Lullaby," the arrangement of a plantation cradle song to the tune of Dvorak's beautiful "Homoresque," the "Pilgrim Chorus" from "Tannhauser," Sir Arthur Sullivan's "Lost Chord," "Finiculi Finicula," the popular, rollicking old Neapolitan song, and such well-known glee favorites as "Cousin Jedediah," "Old Black Joe," and "Schneider's Band," it is justly felt that the members, most of whom, be it remembered, have had no previous experience whatever in chorus singing, have added considerably to the store of those cultural things which neither age nor adversity can take from them.

At the annual meeting of the Baltimore chapter of the Baltimore and Ohio Veterans' Association,

BALTIMORE AND OHIO'S GLEE CLUB WHICH IS FAST BECOMING A POPULAR ORGANIZATION AMONG THE EMPLOYEES OF THAT SYSTEM.

held in Baltimore in January, the Glee Club had a large part in the entertainment program, and gave the veterans and their friends a good deal of pleasure. So also at the several open rehearsals at which the friends of the members of the Club have been present, splendid entertainment has been provided. In fact, some of the good employe "boosters" of the Club who are not members but who have come to these open rehearsals have expressed their surprise and gratification at the improvement in the singing and the ambitious work that the members are trying to accomplish. The event looked forward to, however, is the First Annual Concert and Dance, to be held at Lehman's Hall, the finest available assembly hall for such an affair in Baltimore, on the night of April 21st. This will enable the large number of Baltimore employes of the company to meet socially, an opportunity that has not been open to them for several years. On this occasion the Club will sing eleven numbers, interspersed with solos and a dramatic recitation by Mr. Smock, the conductor, after which a large orchestra will play for the dancing. The finishing touches will be put on the concert numbers at the few remaining rehearsals, and the determination and enthusiasm which is so evident among the members augurs well for a creditable performance.

The accompanying picture shows only about thirty of the fifty odd men who are now singing with the Club. Many other employes of the company have recently made application to join the Club, but it is felt that the concert is too near at hand to add new names to the roster at this time. The interest which is thus evidenced, however, augurs well for the future of the Club, and it would not be at all surprising to see one hundred active members when the Club meets again next autumn for another year's work and pleasure. In fact, some of the present and prospective members have expressed a determination to carry on the rehearsals during the summer, and if this is brought about many delightful evenings of song and good fellowship can be anticipated.

Personal

Alexander Robertson.

ALEXANDER ROBERTSON has been elected vice-president in charge of the operation of the Missouri Pacific-Iron Mountain Lines. He succeeds Mr. E. J. Pearson, who resigned to accept the position of vice-president in charge of operation of the Texas and Pacific Railway.

Mr. Robertson began his railroad career with the Fitchburg Road in 1885. He worked his way up from brakeman to conductor, yardmaster, station master and trainmaster in succession, and in 1897 he left the company to accept the position of general yardmaster of the Wabash Railroad at Decatur, Ill. After a brief time he was made trainmaster and then superintendent of the Wabash. In 1903, when he was called to Baltimore to become manager of operation of the Western Maryland, West Virginia Central and Pittsburgh Railways, which have all since been consolidated under the name of the Western Maryland, his departure from Decatur was made the occasion of a general demonstration on the part of the whole town. The Terminal Railroad Association of St. Louis in looking for a man to take charge of their operations during the heavy traffic that it was known the World's Fair would develop, selected Mr. Robertson as the right party and appointed him general manager. The remarkable success with which he handled that traffic has been commented upon in most complimentary terms by railroad men in all sections of the country. In November, 1905, the Western Maryland, whose properties had been unified, selected him as their general manager in charge of both transportation and traffic, and in March, 1907, he was elevated to be vice-president of the company. When Mr. B. F. Bush, the president of the Western Maryland, was elected to head the Missouri Pacific-Iron Mountain System in April, 1911, Mr. Robertson was chosen by the directors to be his successor. On June 9, 1913, Mr. Bush selected him as his assistant in the operation of the Missouri Pacific-Iron Mountain, Denver and Rio Grande and Westerfn Pacific Railways, with the title on each system of Assistant to President, and he has been fulfilling the duties of that position ever since.

On the several railroads on which Mr. Robertson has been an official he has always enjoyed the confidence and friendship of the men under him and is very popular alike with both the railroad people and the general public. He is a strong advocate of the railroads going direct before the people with their troubles and explaining to them the true situation of affairs. He took quite an active part in the recent campaign of the carriers for an increase in rates, and much of the sentiment in favor of granting the request was due to his clear, strong and frank presentation of conditions.

ALEXANDER ROBERTSON.

Richmond Dean.

RICHMOND DEAN, who has recently been elected vice-president of the Pullman Company, was born at St. Louis, Mo., November 2, 1862, and was educated in the public schools. In 1875 he entered the service of Boatmen's Bank in St. Louis, and subsequently until 1882 he was with the Missouri Pacific Railway. He then became connected with the Pullman Company and for six years was located at St. Louis, being transferred to the Chicago headquarters in 1888. He left that company in 1894 and became assistant to the vice-president of the Missouri, Kansas & Texas Railway. Five years later, Mr. Dean returned to the Pullman Company as assistant to the vice-president, and in 1905 he was made general manager, which position he held until his election as vice-president.

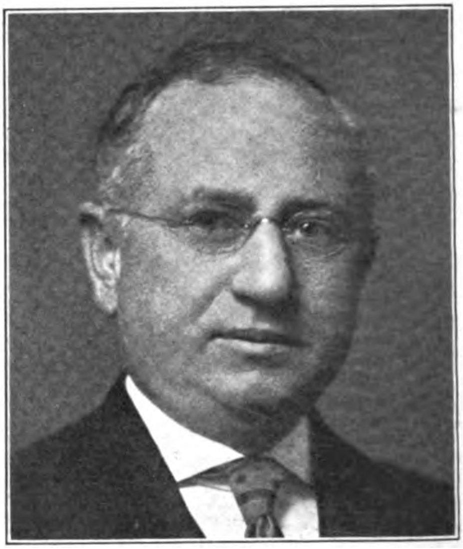
Samuel T. Wagner.

SAMUEL T. WAGNER, who has been appointed chief engineer of the Philadelphia and Reading Railway, was born in Philadelphia in 1861. He graduated from the University of Pennsylvania in 1881, with a degree of Bachelor of Science, and was awarded the Senior Civil Engineering prize. In 1884, the degree of Civil Engineer was awarded him.

He served as draughtsman, assistant superintendent of shops and superintendent of shops with the Phoenix Iron Company from 1881 until 1893 except about one year when he was resident engineer of erection on the construction of the Louisville and Jeffersonville bridge over the Ohio River for the Phoenix Bridge Company, in 1890. In 1893 and 1894 he was chief draughtsman in the Bridge Division of the Bureau of Surveys of the City of Philadelphia. From 1894 to 1900 was assistant engineer in charge of the design and construction of the Pennsylvania Avenue subway and tunnel on the line of the Philadelphia & Reading Railway with the Bureau of Surveys, City of Philadelphia, a work involving the lowering of the tracks of the railway and costing about $6,000,000.

From 1900 to 1902, he was assistant engineer in charge of the work of the improvement, extension and filteration of the water supply of the City of Philadelphia, and from 1902 until his recent appointment, was assistant engineer of the Philadelphia & Reading, engaged generally in extensive grade crossing work and in the elevation of tracks, within the City of Philadelphia.

Mr. Wagner has been a member of the American Society of Civil Engineers since 1887, to which he has contributed a number of papers. For one of these papers during the present year he was awarded the James Laurie prize. He is also a member of the American Society for Testing Materials and a past president of the Engineering Alumnae Society of the University of Pennsylvania. He is a member of the Pennsylvania Chapter of the Sigma XI Scientific Society; Trustee, professor of engineering and president of the Faculty of the Wagner Free Institute of Science, Philadelphia; member of the American Society for the Advancement of Science.



SAMUEL T. WAGNER.

W. H. Tayloe.

W. H. TAYLOE, who has been appointed passenger traffic manager of the Southern Railway, succeeding Mr. S. H. Hardwick, who has retired because of ill health, is a native of Richmond County, Virginia, and began his career in the service of the Southern Railway and its predecessors as stenographer, and has filled successively positions as passenger agent, then general passenger agent and latterly a traffic manager of the Chesapeake Steamship Company. Mr. Tayloe assumed the duties of his new position on April 15th.

Gerrit Fort.

GERRIT FORT has been appointed passenger traffic manager of the Union Pacific System with headquarters at Chicago. Mr. Fort was born November 12, 1865, at Cedar Rapids, Iowa. He began railway work in the fall of 1884 as clerk to the superintendent of the Burlington, Cedar Rapids & Northern at Cedar Rapids. From January, 1887, to September, 1889, he was clerk to the auditor of the Wabash at Chicago under the receivership; was then for two years assistant rate clerk in the general passenger department of the New York Central & Hudson River at New York, and from September, 1891, to January, 1897, was chief clerk of that department. He left the New York Central to become secretary of the Central Passenger Association at Chicago, resigning in September, 1900, to go to the Union Pacific as assistant general passenger agent. Mr. Fort returned to the New York Central Lines in June, 1907, as assistant to the vice-president, and in February, 1910, he was made general passenger agent of the lines east of Buffalo. In July of that year he again entered the service of the Union Pacific as passenger traffic manager, with office at Omaha, Neb. His jurisdiction was extended over the Oregon Short Line in December, 1910, and on April 1st he was appointed also passenger traffic manager of the Oregon-Washington Railroad & Navigation Company, and his headquarters removed to Chicago, as above noted.

J. W. Roberts.

J. W. ROBERTS, who has been appointed general superintendent of passenger transportation of the Pennsylvania Lines West of Pittsburgh, with headquarters at Pittsburgh, was born at Buckhannon, W. Va., February 10, 1872. His education in the public schools and high school in the State of Indiana, was supplemented by a business course in the Lafayette Business College, Lafayette, Ind., and a scientific and law course in the Indiana College, Covington, Ind.

He entered the service of the Vandalia Railroad Company (a part of the Pennsylvania system), January 4th, 1904, as a clerk in the Transportation Department and was promoted, January 13th, 1905, to the position of assistant chief clerk, office of the general manager; January 16th, 1910, to the position of assistant car accountant; September 1st, 1910, to the position of car accountant; October 1st, 1911, to the position of superintendent of car service; and on February 1st of the current year, to the position of general superintendent of passenger transportation, Pennsylvania Lines West of Pittsburgh.

His first railroad service was with the L. E. & W. R. R. Co., by which he was continuously employed from March 1st, 1894, to February 28th, 1900, inclusive. From March 1st, 1900, to July 23rd, 1903, he was in the employ of the C. C. C. & St. L. Ry. Co., and from July 23rd, 1903, to January 4th, 1904, in the employ of the M. K. & T. Railway System; the positions held during the periods specified being: telegraph operator, station agent, yard clerk, assistant yard master, yard master, car distributor, train dispatcher, chief clerk, division superintendents' offices, chief clerk in assistant general superintendent's office, with supervision over freight and passenger car distribution matters, and chief clerk, general superintendent's office.

J. W. ROBERTS.

Samuel M. Rankin.

SAMUEL M. RANKIN, who has been appointed assistant general superintendent of passenger transportation, Pennsylvania Lines West of Pittburgh, was born at Sewickley, Pa., August 8, 1871. Mr. Rankin entered the service of the Pennsylvania Company as telegraph operator on the Eastern Division, on June 19, 1887.

Mr. Rankin has served in the capacity of telegraph operator, chief train dispatcher's assistant and chief passenger clerk in the office of the general superintendent of transportation. On

Samuel M. Rankin.

J. W. Orr.

January 1, 1902, he became chief clerk in the office of the general superintendent of passenger transportation.

On February 1, 1915, as above noted, Mr. Rankin was appointed assistant to the general superintendent of passenger transportation.

J. W. Orr.

J. W. ORR, who has been appointed comptroller of the Pennsylvania Lines West of Pittsburgh, was born on September 9, 1866, at Pittsburgh, Pa. He entered the service of the Pennsylvania Lines in 1880, as ticket sorter in the auditor's office. During the next ten years he filled various responsible clerkships with an ability that led to his promotion in 1890, to general bookkeeper.

In 1897, Mr. Orr was made chief clerk of the Comptroller's office of the Pennsylvania Lines, and on January 1, 1903, he was appointed general accountant. On April 1, 1905, he was made assistant to the comptroller, and on January 1, 1913, was appointed assistant comptroller.

Mr. Orr, on February 1, 1915, as above noted, became comptroller of the Pennsylvania Company and the Pittsburgh, Cincinnati, Chicago and St. Louis Railway Company.

James L. Mason.

JAMES L. MASON, who has been appointed assistant secretary and superintendent of Employes' Saving Fund, Pennsylvania Lines West of Pittsburgh, was born September 27, 1867, near Richmond, Ind. He graduated from the Kentucky Normal University, and on March 12, 1888, entered the railroad service as stenographer and clerk in the office of the superintendent of the Pittsburgh, Cincinnati and St. Louis Railway, at Pittsburgh.

Mr. Mason was promoted to chief clerk to the first vice-president on January 1, 1902, and on January 15, 1906, he was appointed assistant secretary of the Pennsylvania Lines West of Pittsburgh. He was asigned the additional duties of superintendent of the Employes' Saving Fund of the Lines West on February 1, 1915, as above noted.

James L. Mason.

Operation

Chief Inspector of Bureau for Safe Transportation of Explosives Issues Annual Report.

COLONEL B. W. DUNN, chief inspector of the Bureau for the Safe Transportation of Explosives and other dangerous articles, has issued his annual report for the calendar year 1914. He refers in a general way to the results accomplished during the year, as follows:

"Bearing in mind that the object of this work is to promote safety in the transportation of explosives and other dangerous articles, it is evident that we can determine the effect of our efforts in this direction only by the compilation from year to year of accurate data showing the losses that do occur and the causes of them. As soon as we are in a position to report all of these losses, the figures themselves will tell the effect of our work. The difficulty in collecting complete reports of all accidents of this nature occurring on the railroads of the United States and Canada is apparent. It seems reasonable to assume that it will take several years to perfect the methods for reporting these accidents and to drill the employes to whom the duty of reporting them is assigned so thoroughly as to insure the receipt of complete reports. It is probable that we have not yet reached the condition that will enable us to present our statistics with any reasonable confidence in their completeness. We cannot, therefore, draw any definite conclusions from the totals of fires, injuries and property losses. We believe that we are securing substantial reductions in the actual losses that occur, and we know that we are securing substantial increases in the attention paid by railway officials and employes to the duty of reporting these accidents to this office. If the increase in reports over-balances the decrease in accidents, our figures must tend to convey the erroneous impression that our work is not effective."

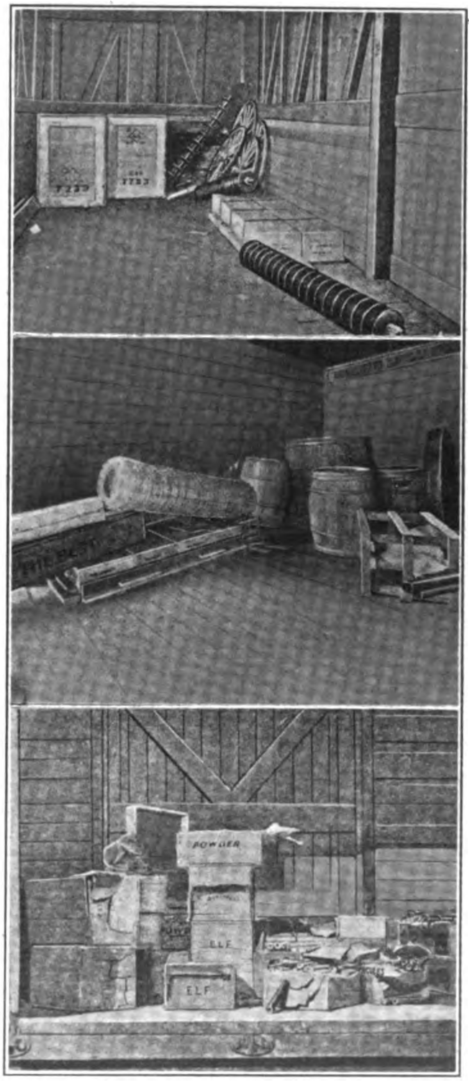
COMPARATIVE SUMMARY SHOWING RAILWAY TRANSPORTATION LOSSES CHARGEABLE TO EXPLOSIVES AND OTHER DANGEROUS ARTICLES.

Class	Number Killed	% of Total Killed	Number Injured	% of Total Injured	Number of Accidents	% of Total Accidents	Property Loss	% of Total Cost
Explosives	0	0	5	5	9	2	$14,106.50	5
Acids and Corrosive Liquids	0	0	23	20	192	38	5,139.47	2
Inflammable Liquids	9	70	24	21	80	16	152,457.16	54
Inflammable Solids	2	15	38	32	168	33	90,212.78	31
Compressed Gases	0	0	24	21	12	3	862.88	1
Unlisted Semi-dangerous Articles	2	15	0	0	39	7	20,227.32	7
Totals 1914	13	..	114	..	500	..	$283,006.11	..
Totals 1913*	2	..	40	..	490	..	$359,623.00	..
" 1912*	8	..	21	..	335	..	338,582.00	..
" 1911*	12	..	26	..	302	..	126,766.00	..

*Latest figures.

"The growth in reported losses—total number of accidents and total cost—from 1911 to 1913 shown in the above table is believed to be due to the fact that our increase in reports was more than the decrease in accidents caused by a gradually increasing enforcement of the regulations. If this be true there is reason to hope that from now on our totals will show a gratifying decrease."

The report of the Chief Inspector contains a number of photographs illustrating the careless methods still employed in the loading of explosives. Three examples are herewith reproduced. The first shows the interior of a car received by a Bureau member from a connecting line. A shipment of high explosives consisting of eight 50-pound boxes was loaded along the side of the car and immediately behind a disc harrow was loaded. It is apparent from the photograph that one of the discs has fallen from an upright position and crushed in one of the boxes of dyna-



STRIKING EXAMPLES OF CARELESS METHODS EMPLOYED IN THE LOADING OF EXPLOSIVES.

mite. The bracing of the boxes is recorded to have been loosely done and, in general, the condition of the car shows a lamentable ignorance of what is required for safety.

The second picture indicates that the employe loading this shipment which consisted of eight small and one large case of high explosives, blocked and braced it in a manner to prevent its change of position during transit, but failed to provide against other freight falling on the cases or sliding against them. In consequence, several heavy articles fell on the cases of explosives causing a number of cartridges to roll on to the car floor and also resulting in the crushing of a number of cartridges, in one of the cases. In this case, an explosion which might readily have destroyed the car and wrecked the train, in which it was moving, was narrowly averted.

The third photograph shows how the inside of a car of high explosives looked upon arrival at destination November 9, 1914. Thirty-seven cases of dynamite were so badly damaged that new cases were required for repacking. Three other cases were completely demolished and the contents scattered around the car. The car itself was considerably damaged, one end being pushed out from the body of the car about two inches at the floor line. The cause for all this damage, which might have led to an explosion severe enough to have wrecked the entire train, was evidently rough handling by the train crews.

Operation of Freight Trains on Lehigh Valley.

TWO hundred and eighty-nine regular freight trains operated by the Lehigh Valley Railroad made a record of being on time 98.4 per cent during the month of March, according to an announcement just made by the management. Eight daily through freight trains leaving either Jersey City or Buffalo, arrived at their terminals every day during March either ahead or exactly on time. Two daily trains carrying shipments for points west of Buffalo were on time every day during the month and delivery to connecting lines there was made on time on all but three occasions. In each case this was due to unusual conditions at the delivery point; but the delay, the longest of which was fifteen minutes, did not interfere with the service, all connections being made and no shipments being held up.

Southern Railway Begins Campaign for Quieter Station Conditions.

UNNECESSARY noises which are likely to disturb passengers in sleeping cars, placed in stations for occupancy during the early hours of the night, have been put under the ban by Southern Railway.

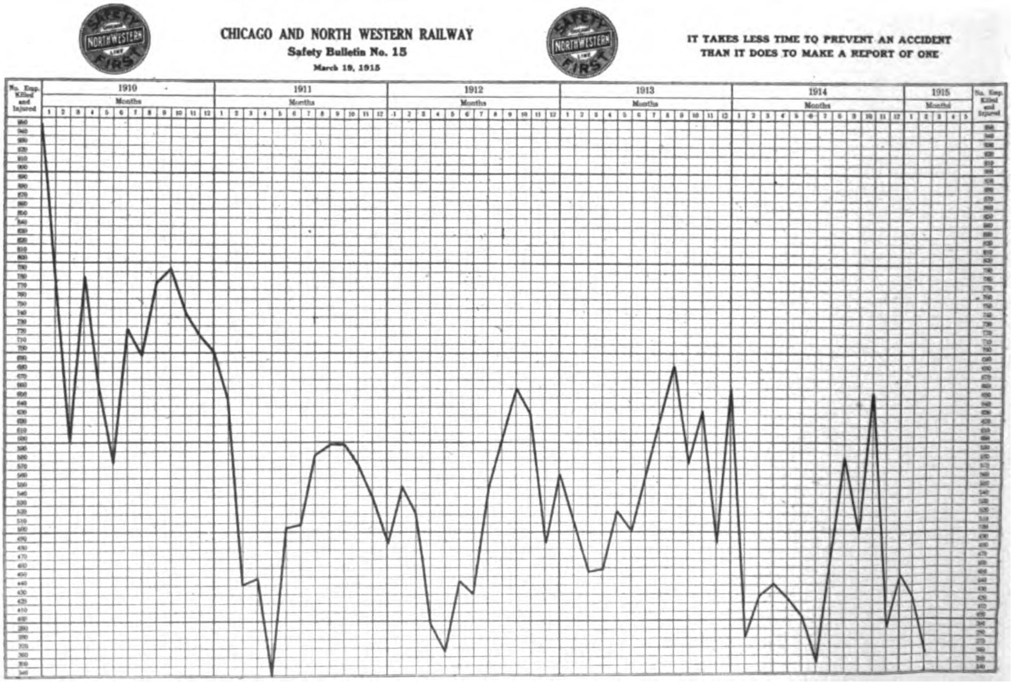
Rigid orders have been issued in regard to the ringing of bells by switch engines and loud talking by porters and other employes, a campaign for the suppression of unnecessary noises having been inaugurated by Vice-President and General Manager Coapman. At stations where sleeping cars are placed notices were posted as follows:

> "Sleeping car berths on this train are prepared for occupancy at ..(time).. Kindly avoid all loud conversations or other noise in or around sleeping cars after that hour."

The results have been so satisfactory as to eliminate almost entirely complaints from passengers arising from annoyances of this character.

Chicago and North Western's Safety Record.

THE accompanying diagram shows the reduction in deaths and injuries to North Western employes since the organization of the Safety First Committees on this road. The following statement gives the figures:



	Killed	Injured
1910	97	8404
1911	76	6025
1912	73	6043
1913	67	6395
1914	49	5520

This constitutes a remarkable record and it is hardly necessary to point out the great benefits which the Company has derived from the movement not only in the protection of the lives of valuable employes but in actual financial results. It should not be forgotten that the successful application of the safety movement also means fewer widows, orphans and cripples and less destitution and misery.

Fighting Fires on the Baltimore and Ohio.

SINCE the adoption of a plan by the Baltimore and Ohio Railroad several months ago whereby its train employes, track forces and others could be enlisted in times of emergency to render assistance in putting out fires on property adjacent to its tracks as well as on the right-of-way, there have been numerous instances where serious losses have been prevented. The blanks thrown off moving trains by engineers and conductors have brought prompt aid from the working forces, but the railroad's efforts in such direction have been extended by a circular issued to the employes as a supplement to the general notice.

In the future employes receiving information concerning the existence of a fire will notify the division superintendent by wire, so that the fire warden or other state, municipal or county officer may be informed. Such an arrangement would so operate that if fire were detected by railroad employes in a village not equipped with fire-fighting apparatus or a farm house, assistance could be summoned by the railroad from the nearest place where such facilities were at hand.

Safety Developments on the Grand Trunk.

THE success of the "Safety First" movement on the Grand Trunk Pacific Railways, has recently been so marked as to attract considerable attention among railway men both in the United States and Canada.

During January and February, there were only twenty-nine cases of injury to employes and only four of them were at all serious. When it is considered that this record covers a system of more than 3,000 miles, during months when weather conditions were particularly unfavorable, it constitutes a remarkable showing.

Of the total number of injuries reported twelve were purely accidental; twelve could have been prevented by greater care, and five are of a doubtful nature—that is, there may well be a difference of opinion as to whether they were accidental or could reasonably have been prevented.

The cases which were apparently preventable occurred in the following manner:

1. Car repairer—axle fell on foot.
2. Machinist Helper—pulley block broke and piece of wood struck him.
3. Yardman when on side of car struck platform on industrial track. Platform since removed to afford greater clearance.
4. Fireman had his head out cab window; struck by cars on near track.
5. Section laborer jumped from moving motor car and fell.
6. Section laborer jumped from moving motor car and was run over.
7. Section laborer thrown from motor car which was derailed by a shim falling from the front of the car upon the rail. (Tools and material likely to roll or be pushed off should be loaded on the sides or at rear of cars—not in front.)
8. Trucker at freight house stepped on nail which projected from a loose board that a carpenter doing some repair work had left on the floor. The carpenter either didn't think or didn't care about the safety of others. If he had practiced "Safety First," the trucker would not have been injured.
9. Boilermaker's helper while working inside fire-box was struck by air dolly in hands of another man.
10. Section Foreman on hand car struck by extra.
11. Bridge Watchman on speeder struck by extra.
12. Laborer struck on head by door which fell from steam shovel.

Measures Taken by the Hudson and Manhattan Railroad Company to Conserve Safety.

THE American Museum of Safety, located in New York, has published in pamphlet form, data submitted by the Hudson and Manhattan Railroad Company in competition for the Brady medals. It shows a remarkable attention to detail in an effort to produce a maximum of safety in the operation of its numerous trains. The following paragraphs are taken from the report referred to.

The entire trackage of the Hudson and Manhattan Railroad system is equipped with automatic signals, A. C. track circuit, single and double block overlap. Approximately 50 per cent of the signal system is of the electro-pneumatic type, and the balance of the all electric type, each type being of equal efficiency. All switches are electrically locked from interlocking towers, and as an additional protection facing point switches are equipped with detector bars. Failure of any signal mechanism sets the signal involved at "danger," and also sets the automatic train-tripping device. In other words, the deenergized or bad order condition of the signal is the "danger" position. As evidence that our block signal system is maintained to a high degree of efficiency, we submit that in the year ended June 30, 1914, in 63,866,450 signal movements there were but fifty-four cases of failure.

At junction points where crossings are usually effected, our system is laid out so that the respective opposite tracks cross over each other on superimposed decks in caisson enlargements, thus eliminating all crossings at grade.

AUTOMATIC TRAIN STOPS.

The entire system is equipped with automatic train stops which are electrically controlled and pneumatically operated at every signal. The contact feature of the automatic train stop is a rocker arm located outside of the running rail, which automatically raises and lowers with every signal operation. When the signal is set at "danger" the tripper device is raised in a position for engaging with the tripper valve on the cars, thus effecting an emergency application of the air-brakes on the train involved.

SAFETY DEVICE IN CABS, SHOPS, POWER HOUSES, SUB-STATIONS, AND IN CONNECTION WITH ROADWAY AND TRANSMISSION AND DISTRIBUTION SYSTEMS.

All cars operated through the Hudson Tunnels are of all steel and of the most substantial construction. Every car is equipped with the automatic train-stopping device described above, and with the Hedley type of anti-climbing bumpers. The car control is the General Electric type of multiple unit system, including the "dead man's button" on the controller. Every car is equipped with air brakes with double control, pneumatic and electric, and also with hand brakes for emergency purpose. All car doors, except intercommunicating doors, are electrically controlled and pneumatically operated. The electrical energy for such operation is supplied from storage batteries, thus insuring door operation under all conditions. The edges of all doors operated as above are equipped with three-inch soft rubber collapsible cushions, thus minimizing the possibilities of injury which might be caused by being caught in or struck by a closing door. Special valves are provided to regulate the speed at which these doors may be closed. All cars are well ventilated, have sanitary composition flooring, and are cleaned three times daily, with additional special cleanings when required. Careful inspections are given daily, and no "bad order" equipment is allowed to be operated over this company's lines.

The car shops are provided with modern machinery and tools, which for the most part are motor-driven. All belt-driven machinery, gears and revolving parts have been equipped with proper guards to prevent accidents. All shop cranes and hoisting apparatus are attended by special operators, and they only are allowed to operate this machinery, thus avoiding accidents due to lack of familiarity with these appliances. As far as possible, pneumatic tools are used instead of hand tools. All inspection pits are equipped with automatic "warning" whistles, which give constant warning while current is turned on, thus guarding against electrical shocks and burns. Shop floors are kept clean and free from grease, thus guarding against accidents due to slipping. The problem of heating and ventilating the shops has been given careful consideration, and we believe that in all respects our repair shops are equipped and maintained so as to give the highest efficiency in the matter of safety.

In the main power house careful consideration is given to the matter of a continuous inspection and study of working conditions, and the plant is at all times kept at its highest point of efficiency and safety. All galleries, stairways and platforms are protected by stout railings, and open elevator shafts are protected by screens. The high voltage switches and wiring are all enclosed behind fire-proof partitions and doors, and confined in one chamber. All moving belts and gears are protected by guards and railings, and permanent platforms and galleries are constructed wherever necessary instead of temporary scaffolding.

Many precautions have been taken in the substations to guard against electrical shocks, and a reliable testing device is provided to determine positively that currents are turned off before repairs or cleaning are begun. Guard railings have been installed, and all low tension switches are operated from rubber matting. Each substation is provided with a pulmotor, and at all times not less than two men are continually on duty.

This company's transmission system consists throughout of lead-covered cable in conduit and duct line construction, thus rendering impossible any electrical shock from physical contact.

The distribution system consists of feeders of paper and lead insulation type in duct lines. The contact rail is protected by a continuous covering of jarrow wood, and is of a complete automatic distant control, loop fed, with automatic pull boxes for cutting off the current. These boxes are located at intervals not exceeding 500 feet, and averaging about 400 feet, and are indicated by special lights. Telephones are located at each power control box, giving quick connection with load distribution points, through our own privately and continuously operated telephone switchboard. Distribution switches are fully enclosed, and of long handle type to prevent contact with live parts. No bare copper positive circuit installations are used.

THE SEPARATION OF GRADES, REDUCTION OF CURVES AND THE ELIMINATION OF OBSTRUCTIONS TO VIEW.

In a subway and tunnel system such as the Hudson and Manhattan Railroad, grades and curves are more frequent than in surface or elevated work. In our case, the unavoidable curves and grades are relieved of all hazardous features by a most complete signal and automatic train-stopping system. At such points blocks are as short in some cases as 175 feet, and are so arranged that train operation is at all times under the guidance of two or more two-position signals, and at all curves, where necessary, repeater signals are installed on the opposite side of tracks. In dangerous locations warning bells, whistle boards, or signs are installed for the further protection of workmen.

THE OBSERVANCE OF HIGH STANDARDS OF INSPECTION, MAINTENANCE AND IMPROVEMENT OF ROLLING STOCK, ROADWAY, TRANSMISSION AND DISTRIBUTION SYSTEMS.

All cars are placed on the pit in the inspection barn for regular inspection, the approximate mileage between such inspections being 1,200 miles. Substantial money rewards are paid to inspectors who discover and report any unusual conditions which have developed between inspections. In our car shops we employ a special inspector whose sole duty is efficiency inspection. Based upon his reports, weekly bonuses, in addition to regular wages, are paid to inspectors whose work is proved to have been well and efficiently performed. The roadway, transmission and distribution systems are constantly inspected and maintained at the highest degree of efficiency and safety. Bonuses, in addition to regular wages, are also paid to track-walkers who discover and report obscure defects.

STANDARDS OF EMPLOYMENT, PHYSICAL AND MENTAL.

The fact that our railroad services require a relatively small number of employes, makes it possible for us to select from the large number of applicants for positions only those who meet with the highest standards in physique, mentality and appearance. This fact also enables us to select a high proportion of men who have had previous railroad experience.

PERIODICAL EXAMINATION OF EMPLOYES, PHYSICAL AND MENTAL.

Before employment every applicant must submit to a rigid physical examination by our medical officer, and at intervals employes in train service are re-examined, and those found to be defective, particularly in heart action and eyesight are removed from such service. As far as possible such men are provided with other employment in which their physical defects will not debar them from satisfactory service.

RULES AND DISCIPLINE.

We submit herewith a copy of this company's Book of Rules. Employes are required to familiarize themselves with such of the rules as relate to their own branches of the service, and periodical examinations are given to insure proper knowledge. A system of discipline, through the medium of merits and demerits, is administered by the "Board of Discipline," which is composed of the heads of all operating departments. Data respecting the merit discipline system is submitted herewith.

EDUCATIONAL MEASURES AFFECTING THE PUBLIC.

In all cars of this company have been posted in the advertising spaces, placards under the caption "Safety First." These cards contain suggestions to the public as to protective measures which they should observe for themselves. Similar signs are displayed in the stations, and also warning signs are displayed at appropriate points cautioning passengers against leaning over the edges of platforms, and such actions as might endanger them.

EDUCATIONAL, PROTECTIVE AND CO-OPERATIVE MEASURES BY AND THROUGH EMPLOYES.

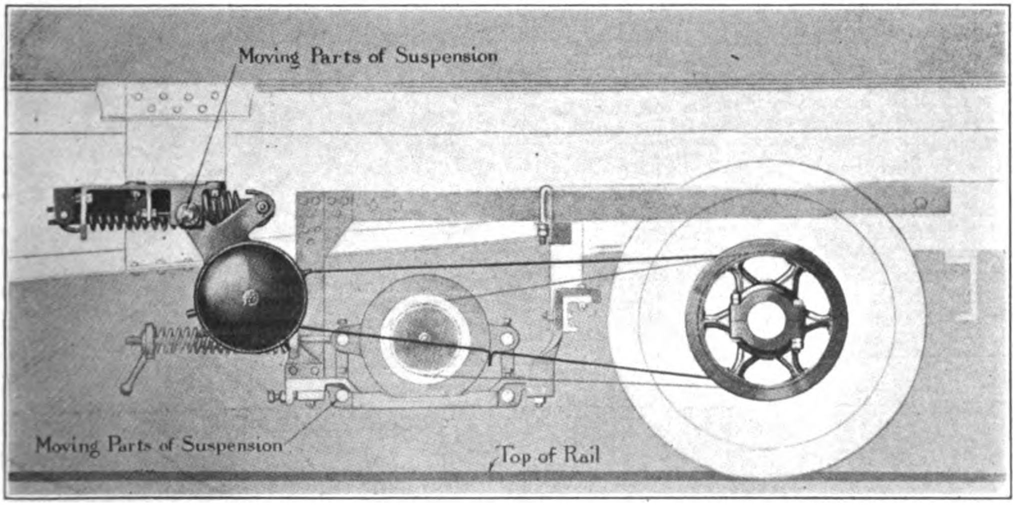
A continuous campaign for "Safety First" is maintained. Submitted herewith, will be found printed matter on the subject which is designed to enlist the co-operation of all employes in this matter by the awarding of merits and the highly coveted prize of the "Safety First Button."

This company is a member of the Greater New York Safety First Society, and is co-operating with other members, which include practically all railroads in the State, for the promulgation of the Safety First propaganda.

Mechanical

"Under-Frame" Electric Lighting System.

THE Safety Car Heating and Lighting Company has developed a new axle lighting electric equipment which is now in successful operation on a number of railway cars. This system, which has become known among railroad men as the Safety "Under-Frame" equipment, has been so named from the fact that the generator is removed from the car truck and is mount-



GRAPHICAL COMPARISONS OF SIZE, SIMPLICITY AND CLEARANCE BETWEEN "UNDER-FRAME" EQUIPMENT AND EQUIPMENT MOUNTED ON THE CAR TRUCK.

ed on the body or underframe of the car. The Company claims that there seldom comes to the manufacturer of railway equipment an opportunity to offer so many new and practical advantages as are given by this system, among which may be mentioned the following:

Reduction of about 60 per cent in weight of generator and suspension.

Removal of three-fourths of a ton of unsprung and overbalancing weight from car truck.

Increased clearances between end sill or brake rigging and belt.

Increased clearances between generator and track.

Decrease in wear of generator and suspension parts.

Increase in accessibility for inspection or repairs.

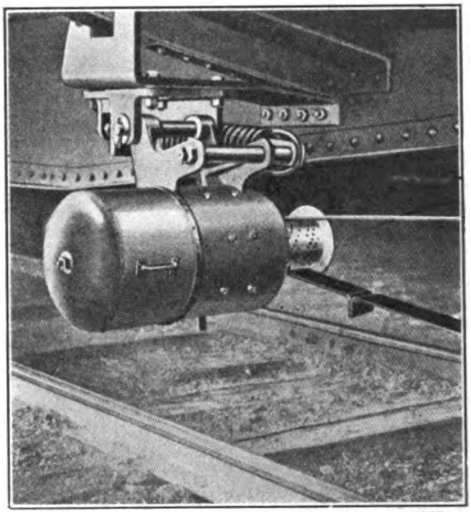
Ease of installation.

Where the generator is attached directly to the car underframe, there is no relative movement between the generator and the car body. This, together with the reduced diameter of the generator, provides for greater latitude in the location of the generator, so that the maximum clearance between the brake-rigging or end sill and the belt is obtained. Increased belt clearances, of course, mean increased belt life and increased reliability of operation.

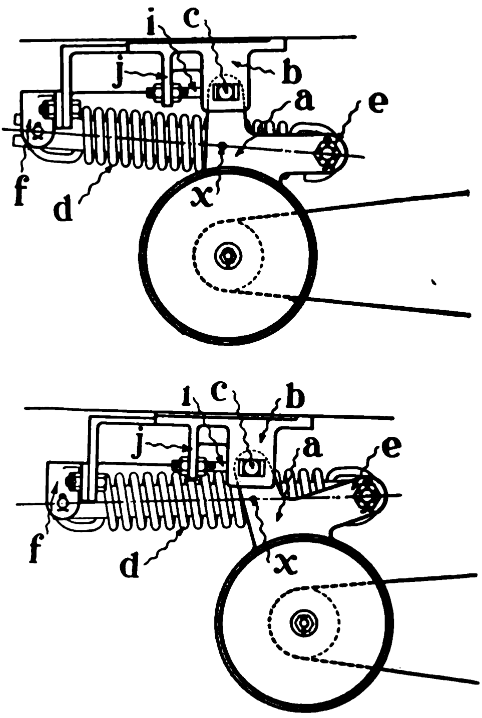
With truck suspensions, the generator is very close to the roadbed, where it is frequently hit by flying ballast and where it acts as a collector of snow and ice in the winter months. This last condition is especially bad, since ice seriously interferes with the proper operation of the equipment. The clearance between the generator and the track or roadbed is considerably increased with this type of equipment; and, what is more important, the moving parts of the suspension are located so high above the track as to be out of all danger from ice and snow. The moving parts of the generator suspension are also out of range of the dripping condensation from the traps on steam heating systems.

Two features which will appeal strongly to railway officials are the accessibility and ease of installation of this new system. The generator is mounted in such relation to the car body, car truck and track, that the electrician can make an inspection without even getting between the track rails and every part of the suspension and generator is most accessible for quick inspection or repairs.

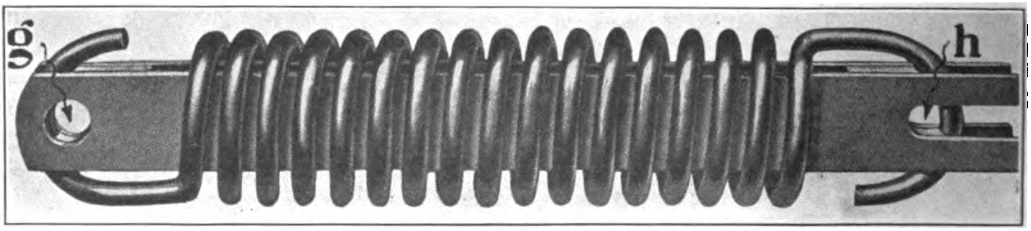
It is obvious that a suspension which attaches to the car underframe is simpler to design and install than one which must be built up to overhang the end of a truck. As the belt clearances are greater, fewer changes will be found necessary to accommodate this type of equipment to the standard positions of the brake rigging and other parts located under the car.



A Simple Method of Installation of "Underframe" Equipment.



Two positions of generator. The first shows position of generator when distance between axle pulley and the suspension is shortened, while the second shows its position when distance between axle pulley and the suspension is lengthened.



Belt tension spring assembled on Carrier under proper tension and ready to apply to the suspension.

The real secret, however, of the success of this type of equipment, is the design of the belt tension used. Not only is the proper belt tension maintained at all times and under all conditions, but no adjustment is required to maintain its proper operation. The changing angle between the car and truck with this type of equipment, as well as the variable distance between the center of the car axle and shaft caused by the car rounding a curve, are adequately taken car of by maintaining constant belt tension with any position of the generator. This prevents excessive belt tension when the distance between centers is lengthened and eliminates belt slipping when the distance between centers shortens.

A "Safety Spur" That Worked.

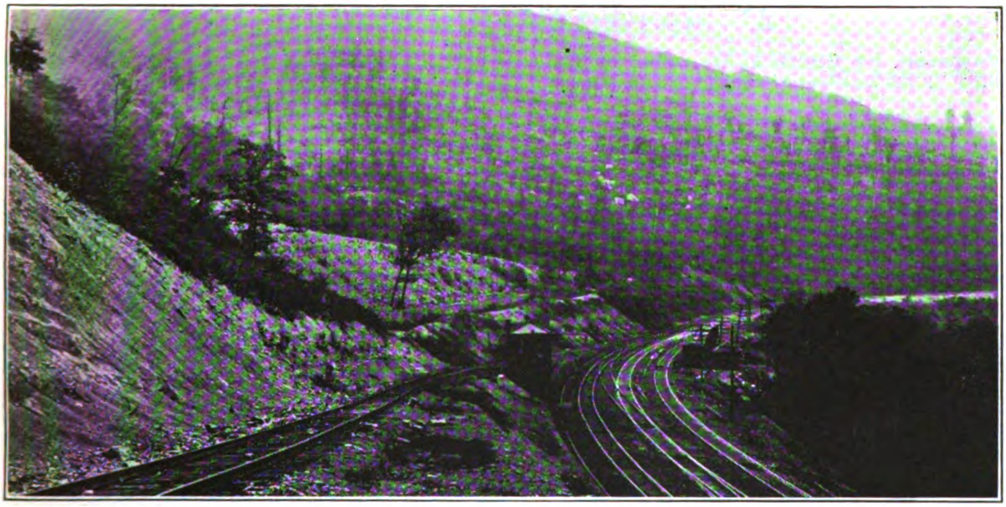
DANIEL WILLARD, president of the Baltimore & Ohio Railroad, lately invented and designed a "safety spur" for the steep Piedmont grade on the main line of the road through the Blue Ridge Mountains. A long 5,000 ton coal-train, which had gathered a dangerous momentum on a decline near Striker's, W. Va., was "caught" by the switch, which is set automatically for the spur and which permits a train to continue on the main line only if it consumes a given interval of time in passing the length of the block.

The coal "juggernaut" indeed, was so effectively caught and wedged on the spur that it was found necessary to send to Cumberland, Md., for nine giant Mogul locomotives. The officials in charge of that section of the road realized that it would be a tremendous task to get the train down to the main line from the up-hill spur, a few cars at a time. With a view to pulling it back onto the main track in a solid unit, and, at the same time, retaining the engine at the head end to handle the air, the nine Moguls were attached to the train, to try to draw it back.

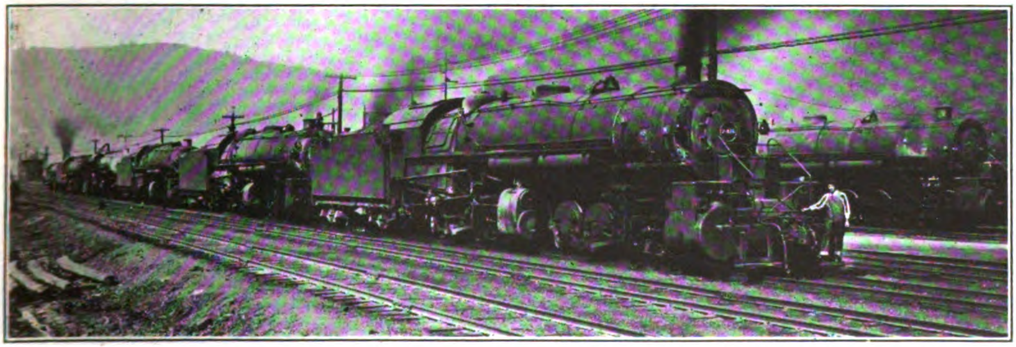
The combined motive-power of the powerful engines was unable to dislodge the train as a unit, and it was then found necessary to break the train up and handle two cars at a time. In this way the train was eventually un-coupled and removed from the safety-spur.

Cleaning Locomotive Arch Tubes.

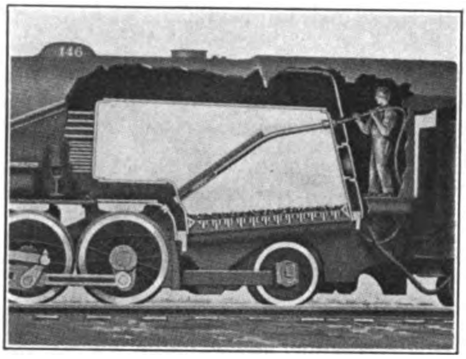
THE accompanying illustrations show in detail the Lagonda air or steam driven arch tube cleaner and its method of employment. It appears that in the arch tubes now so universally



Main Track and Up-Hill Spur, Looking Westward. The Climb on to the Spur is Sufficient to Reduce and Finally Arrest the Momentum of a Heavy Coal Train.



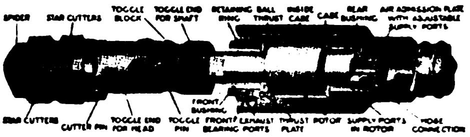
Nine Giant Pusher Engines which were Unable to Move a Runaway Coal Train Caught and Wedged on the Up-Hill "Safety-Spur." It was Necessary to Uncouple Cars and Remove Two or Three at a Time.



Lagonda Cleaner Removing Scale from Arch Tube.

employed in locomotive operations, there occurs scale deposits before they are noticed in any other part of the boiler. While a thin layer of scale might be tolerated on the flue tubes, the arch tubes have to be kept as clean as possible, on account of the high temperatures they are subjected to. If scale is allowed to accumulate on the interior surfaces of these tubes, over heating results, and causes them to bag and blister and sometimes rupture while under steam pressure.

The Lagonda locomotive arch tube cleaner has been developed for the purpose of overcoming this difficulty, and a number of larger railway systems are now regularly employing it in a periodical cleaning of the arch tubes of their locomotives. The company claims that the Rigid Head and Toggle Joint which is a feature of this cleaner, is especially effective in removing the scale from the bends of tubes, as it has a combined cutting and crushing effect which removes all the scale down to the iron.


SPIDER
STAR CUTTERS
TOGGLE BLOCK
TOGGLE END FOR SHAFT
RETAINING RING
BALL THRUST
INSIDE CASE
CASE
REAR BUSHING
AIR ADMISSION PLATE WITH ADJUSTABLE SUPPLY PORTS
FRONT BUSHING
STAR CUTTERS
CUTTER PIN
TOGGLE END FOR HEAD
TOGGLE PIN
FRONT BEARING
EXHAUST PORTS
THRUST PLATE
ROTOR
SUPPLY PORTS IN ROTOR
HOSE CONNECTION

Sectional View of Lagonda Air or Steam Driven Arch Tube Cleaner.

Electrical

Preparing for Electrical Operation on the Pennsylvania.

TWO hundred and seventy-eight of the men who will operate the electric trains of the Pennsylvania Railroad between Philadelphia and Paoli, Pa., have voluntarily enrolled in a Practical Railway Electric Class. The class has been organized in Philadelphia at the Pennsylvania Railroad Branch of the Young Men's Christian Association. Included among the students are 80 enginemen and 28 firemen who are

Instructing Pennsylvania Railroad Employees in Connection with the Operation of Electric Trains.

preparing themselves for the change from steam to electric motive power.

The course of instruction covers 20 lessons and its purpose is to familiarize the men thoroughly with the new type of cars and trains they will be called upon to operate. The teaching of the electric features is in the hands of Clarence Roberts, assistant road foreman of engines, Philadelphia Terminal Division. The air brake features are in charge of Russell M. Smith, air brake instructor, Philadelphia Terminal Division.

The class is under the general supervision of the Mechanical Instruction Committee of the Pennsylvania Railroad Y. M. C. A. H. M. Hinkle is chairman of the committee and the members are: Wm. Colledge, W. W. Davis, Frank Farrell, S. E. Godshall, George M. Johnson, Alfred McMinn, S. T. Manahan, George H. Miller, R. F. Buffington, A. G. Peitsch, R. B. Phenegar, F. T. Roberts, J. K. Rynier, Russell M. Smith, Wm. P. Whitman, Clarence Roberts, J. H. Dupell and J. E. Clare.

The class is divided into two sections so as to give the men on day and night duty equal opportunities to learn. All sessions are held at the main building of the Pennsylvania Railroad Y. M. C. A., 41st Street and Westminster Avenue, Philadelphia. Entrance upon the course has been purely optional. Each member of the class has contributed a small fee—$2 for those not Y. M. C. A. members and $1 for those who are members.

The course of instruction, as its name indicates, is a purely practical one. The aim is to teach every man all that he needs to know in order to perform efficiently his future duties as motorman, conductor, brakeman, etc., when the electric trains go into operation on June 1, 1915.

New Equipment for Service between Chicago and Milwaukee.—The Chicago & Milwaukee Electric Railroad Co., have placed an order with the Westinghouse Electric & Manufacturing Company for fifteen quadruple equipments of type No. 557-A, 140 H. P. motors with double end type "HLF" Control. These equipments are to be placed in high speed passenger express service between Chicago and Milwaukee. The cars will be arranged for train operation.

Terminal Improvements

Improvements at Broad Street Station, Philadelphia.

THE Pennsylvania Railroad Company authorized the following statement:

No plan is in contemplation to abandon the present Broad Street Station nor to erect a new terminal westward of the present location. The track capacity will be increased at Broad Street Station by the electrification of the present facilities. In addition to the electrification work now proceeding, the Company has, within the past two years, re-constructed the station facilities in West Philadelphia and has improved the Connecting Railway from West Philadelphia to North Philadelphia, and at the latter point materially enlarged and improved the station facilities. The Company has also purchased substantially all the real estate necessary to admit of the future widening of Broad Street Station to Cuthbert Street, but this work will be deferred until the benefits from electrification and other improvements have been fully realized.

Queen and Crescent's New Viaduct at Cincinnati.

THE Queen and Crescent Route has just placed in service new viaduct extending from the Ohio River Bridge to Front and Third Streets, and also new track from that point to Smith Street, enabling it to make direct deliveries with its own engines and crews between its freight terminals at McLean Avenue and its Vine Street Station, instead of this business being handled by crews of another company as in the past. These new facilities will also enable the Queen and Crescent Route to make direct interchange with the Pennsylvania Lines. These facilities represent a very important improvement for all freight moving to or from Cincinnati or through Cincinnati via Queen and Crescent Route and Southern Railway, and will entirely eliminate delays which have heretofore occurred on account of intermediate handling by other lines.

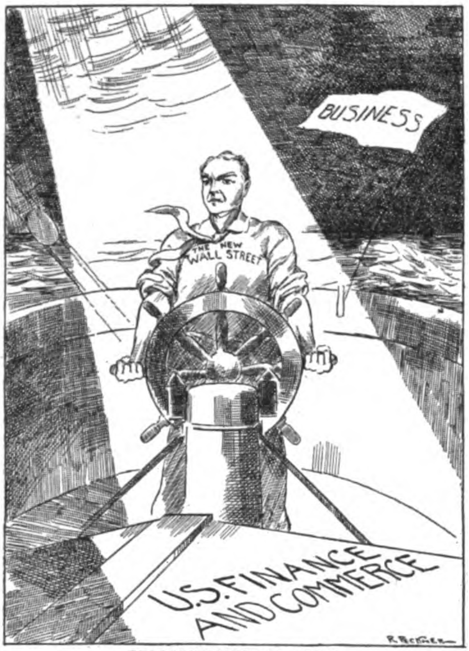
Financial

The General Outlook.

THE Treasury Department at Washington states that according to recent reports from National Bank Examiners, business conditions throughout the country are showing marked improvement in almost all lines. Eighty of the ninety examiners in the United States reported a permanent improvement in business and Maine is said to be the only State where real depression exists.

These reports are announced to be the result of careful observation and supplemental to the regular reports on business conditions made monthly to the Controller of the Currency.

"Pronounced hopefulness is prevalent in nearly every district," says the announcement. "Agricultural conditions are generally excellent, and commercial lines, with comparatively few exceptions, are enlarging their activities, mainly through an increased demand, but in some cases preparation for activity is expected to develop



THROUGH STRESS OF STORM.

—from *Financial America*

with the coming of good weather. Manufacturing is on the increase and those industries having orders for supplies from foreign countries continue especially active.

"Further orders have been placed for cars and rails by the railroads, and some large contracts have been made for structural iron for large buildings in different portions of the country."

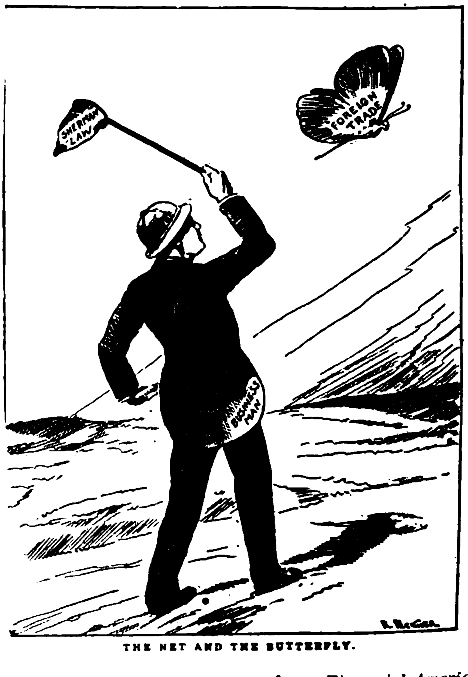
The New York banking house of J. S. Bache and Company also take a more favorable view of the business outlook and it is their impression that it will not be very long before activity will be the rule. If railroads follow the suit of the Pennsylvania, as they usually do, railroad buying will start activity in every direction. It is understood that inquiries are already in from the Great Northern and the Northern Pacific and also from the Chicago Great Western. A number of other roads are expected to follow suit in the immediate future.

The crop situation, as far as developed, is a favorable underlying factor. When prospects are extremely good and the oat crop has been sown in first-class condition. The same may be said with reference to corn and the whole situation may be summarized by stating that grain prospects in the West have never been more favorable at this season of the year.

The stock market appears to be in an unusually sound condition and it is now believed that nearly all the "distress" stock that Europe had to sell on the American market was sold long ago. But that has not stopped foreign selling The sales of international stock that are taking place now come out on advances. Whenever Pennsylvania, New York Central, Atchison, Northern Pacific, Great Northern, Union Pacific, Southern Pacific, Erie and other international stocks, advance on our market, there is fresh selling, principally by London and Amsterdam. These stocks are taken on this side largely for investment and paid for. Much of the absorption is through private sales. It is a sign of a great supply of cash among our people that these sales do not offset the advance. Many of them are simply bought and disappear into strong boxes.

The market is getting into a position where, having sown its wild oats, it is apt to progress with less excitement and more deliberate good judgment. Bonds have been fairly active and give promise of taking on a volume which would insure a genuine uprising security market.

A market of this character has much solid ground upon which to base its existence. These grounds lie in the remarkable conditions which have developed in this country; a scientific Banking system, insuring fluidity of credit, an enormous gold supply with low rates for money and a demand from the whole world for things we have for sale. Depressed periods in business are due to marked insufficiency in demand, to absorb current supply. Buying orders in great volume at such times are needed to fill the gap in demand for goods in the general business of the country. To an extent, these buying orders have been supplied by huge purchases for war account. These are ceaseless and increasing, and have swung our foreign trade balance to highest figures in the history of the United States. To further fill the gap, prosperity for the railroads is eventually essential for a great trade movement, as it insures enormous buying orders from the roads. All the roads need to buy some things. Some of them need to buy very large amounts. The aggregate of their actual needs is something enormous. They are beginning to buy, led by the Pennsylvania, and meantime railroad earnings are commencing to show gains.



THE NET AND THE BUTTERFLY.

—from *Financial America*

Heavy Decrease in Corporate Financing.

THE volume of new financing by American railroads and industrial corporations has greatly decreased. This is emphasized by announcements made during March which indicate a total of only $57,327,000. This compares with $264,246,100 in February, and $127,606,400 in January. In March a year ago, the total was $133,185,000. If sale of the $27,000,000 4½ per cent New York State bonds and other State and municipal financing were taken into account, as well as the insistent demand for funds from abroad, the grand total would, of course, be much heavier.

It is conservatively estimated in banking circles that between 40 and 50 per cent of the aggregate represents sums used to pay off or refund maturing obligations. What throws a strong light on this feature of the returns is the fact that the April maturities will approximate $50,413,000; those for March were $71,903,105; those for February $57,098,783.

The following table compiled by "The Journal of Commerce" classifies the past month's financing (actual issue) and gives comparisons with a year ago:

New financing since January 1st compares as follows:

RAILROADS

	1915	1914	Change
Bonds	$9,350,000	$19,921,000	- $10,571,000
Notes	10,800,000	53,470,000	- 42,670,000
Stocks	....	375,000	- 375,000
Total	$20,150,000	$73,766,000	- $53,616,000

INDUSTRIAL CORPORATIONS

	1915	1914	Change
Bonds	$18,955,000	$10,519,000	+ $8,436,000
Notes	12,700,000	10,500,000	+ 2,200,000
Stocks	5,522,000	38,400,000	- 32,818,000
Total	$37,177,000	$59,419,000	- $22,242,000
Gd. Total.	$57,327,000	$133,185,000	- $75,858,000

RAILROADS

	1915	1914	Change
Bonds	$232,798,300	$106,488,200	+$126,310,100
Notes	36,770,800	98,320,000	- 61,549,200
Stocks	3,950,000	34,698,600	- 30,748,600
Total	$273,519,100	$239,506,800	+ $34,012,300

INDUSTRIAL CORPORATIONS

	1915	1914	Change
Bonds	$88,823,000	$108,248,000	- $19,426,000
Notes	62,705,500	29,006,000	+ 33,699,500
Stocks	24,131,900	62,740,700	- 38,608,800
Total	$175,660,400	$199,994,700	- $24,334,300
Gd. Total.	$449,179,500	$439,501,500	+ $9,678,000

NEW ISSUES FOR MARCH.

The principal divisions of the new securities, including bonds, notes and stocks for March:

NEW ISSUES FOR MARCH

	1915	1914	Change
Railroads ..	$16,000,000	$64,920,000	- $48,920,000
Tractions ..	4,150,000	8,846,000	- 4,696,000
Pub. util. ..	29,066,000	45,269,000	- 16,204,000
Mfg. Cos.—			
Iron & Stl.	....	600,000	- 600,000
Textiles ..	....	650,000	- 650,000
Miscell. ..	1,200,000	1,100,000	+ 100,000
Miscell's ...	6,912,000	11,800,000	- 4,888,000
Total	$57,327,000	$133,185,000	- $75,858,000

FOR THREE MONTHS

	1915	1914	Change
Railroads ..	$246,012,100	$187,297,200	+ $58,714,900
Tractions ..	27,507,000	52,209,600	- 24,702,600
Pub. util. ..	95,043,500	108,830,700	- 13,787,200
Mfg. Cos.—			
Iron & Stl.	15,300,000	3,800,000	+ 11,500,000
Textiles ..	11,700,000	1,350,000	+ 10,350,000
Miscell. ..	4,584,900	34,808,000	- 30,223,100
Miscell's ...	49,032,000	51,206,000	- 2,174,000
Total	$449,179,500	$439,501,500	+ $9,678,000

Interstate Commerce Commission

Statistics of Steam Railroads for the Fiscal Year.

THE Commission has published an abstract based upon compilations for its 27th Annual Statistical Report covering reports of carriers for the fiscal year ending June 30, 1914, of all roads having operating revenues of over $100,000, and also of railway companies owning property operated under lease or other agreement by those carriers. Returns of switching and terminal companies are not included. Advance figures given in this abstract may be slightly modified by revision before final publication.

MILEAGE.

On June 30, 1914, the roads covered by this abstract represented 247,397.59 miles of line operated, including 11,298.88 miles used under trackage rights. The aggregate mileage of railway tracks of all kinds covered by operating returns for these roads was 377,102.45 miles. This mileage was thus classified: Single track, 247,397.59 miles; second track, 27,604.12; third track, 2,696.03; fourth, fifth and sixth tracks, 2,071.45; yard track and sidings, 97,333.26. These figures indicate, for the roads under consideration, an increase of 7,522.65 miles over corresponding returns for 1913 in the aggregate length of all tracks, of which increase 2,995.24 miles, or 39.82 per cent, represent yard track and sidings.

EQUIPMENT.

It appears, from the annual reports submitted to the Commission by the roads covered by this abstract, that there were 64,760 locomotives in their service on June 30, 1914, an increase of 1,382 over corresponding returns for such roads for the previous year. Of the total number of locomotives, 14,612 were classified as passenger, 38,752 as freight, 10,081 as switching, and 1,315 were unclassified.

The total number of cars of all classes in the service of such roads was 2,503,822 (or 58,314 more than on June 30, 1913), which equipment was thus assigned: Passenger service, 53,466 cars; freight service, 2,325,647; company's service, 124,709. The figures given do not include so-called private cars of commercial firms or corporations.

The 2,325,647 cars in freight service were classified as follows:

Description.	Number.	Aggregate Capacity. Tons.
Box	1,043,796	36,622,074
Flat	146,133	5,214,949
Stock	82,971	2,597,278
Coal	899,314	40,583,490
Tank	8,530	340,722
Refrigerator	48,886	1,577,973
Other cars in freight service	96,017	4,040,612
Total	2,325,647	90,977,098

It appears that the average number of locomotives per 1,000 miles of line was 262, and the average number of cars per 1,000 miles of line, 10,121. The number of passenger-miles per passenger locomotive was approximately 2,365,000, and the number of ton-miles per freight locomotive was approximately 7,369,000.

The returns indicate that the number of locomotives and cars in the service of the carriers under consideration aggregated 2,568,582, of which 2,556,295, or 99.52 per cent as against 99.36 per cent in 1913, were fitted with train brakes, and 2,565,319, or 99.87 per cent as against 99.86 per cent in 1913, were fitted with automatic couplers. Of the 2,325,647 cars in freight service on June 30, 1914, the number fitted with train brakes was 2,319,573, and the number fitted with automatic couplers was 2,322,762.

EMPLOYEES.

The total number of persons reported as on the pay rolls of the steam roads of the United States on June 30, 1914 (not including those in the employ of roads the gross operating revenues of which were reported as less than $100,000 or those in the service of switching and terminal companies), was 1,695,483, or an average of 685 per 100 miles of line. As compared with corresponding returns for June 30, 1913, there was a decrease of 119,756 in the total number of such railway employes. There were 61,365 enginemen, 64,335 firemen, 47,621 conductors, 135,853 other trainmen and 37,671 switch tenders, crossing tenders, and watchmen.

The total amount of wages and salaries reported as paid to railway employes during the year ended June 30, 1914, for the roads under consideration was $1,373,422,472.

The complete report will include summaries showing the average daily compensation of 18 classes of employes for a series of years, and also the aggregate amount of compensation reported for each of the several classes.

CAPITALIZATION OF RAILWAY PROPERTY.

On June 30, 1914, according to the annual reports submitted to the Commission by roads having gross operating revenues of $100,000 or more, together with returns made in reports filed in behalf of their non-operating subsidiary lines, the par value of the amount of railway capital outstanding was $20,247,301,257. This amount includes capital held by the railway companies concerned, as well as by the public. Of the total amount of such capital outstanding there existed as stock $8,680,759,704, of which $7,304,479,846 was common and $1,376,279,858 was preferred; the remaining part, $11,566,541,553, representing funded debt, consisted of mortgage bonds, $8,496,370,538; collateral trust bonds, $1,182,683,530; plain bonds, debentures, and notes, $1,142,016,070; income bonds, $254,230,505; miscellaneous funded obligations, $72,700,640; and equipment trust obligations, $418,540,270.

Of the total capital stock outstanding for the roads under consideration, $3,019,020,981, or 34.78 per cent, paid no dividends. The amount of dividends declared during the year (by both operating and non-operating companies represented in this statement) was $451,263,197, being equivalent to 7.97 per cent on dividend-paying stock. The average rate of dividends paid on all stocks outstanding pertaining to the roads under consideration was 5.20 per cent. The increase in dividends declared during the year, being $82,656,870, is principally accounted for by increased dividends declared by the Union Pacific Railroad Company and the Central Pacific Railway Company. The dividends declared during the year by these two companies were more than $86,000,000 greater than those of the preceding year. As appears in column 4 of this abstract, the total dividends of operating roads, $379,865,024, included $162,760,634 declared out of surplus and the dividends of non-operating roads, $71,398,173, included $34,170,961 declared out of surplus. No interest was paid on $1,331,581,452, or 11.94 per cent, of the total amount of funded debt outstanding (other than equipment trust obligations).

INVESTMENT IN ROAD AND EQUIPMENT.

The figures presented under this caption include returns for investment in road and equipment, shown by the operating roads covered by this abstract, as well as by their subsidiary non-operating roads (leased, operated under contract, etc.). The expenditures for additions and betterments, as well as the expenditures for new lines and extensions, during the fiscal year 1914 are analyzed in the following tabular statement:

Investment to June 30, 1914 (236,706.60 miles of line represented)		$16,936,697,840
Investment to June 30, 1913 (234,220.06 miles of line represented)		16,424,359,514
Increase 1914 over 1913		$512,338,326
From cash or other working assets	$330,529,491	$61,370,851
From special appropriations	43,616,529	114,129
Through issue of securities	138,135,821	60,062,788
*Not assigned to any of the		

above classes	3,779,449	157,910
	516,061,290	121,705,678
Total expenditures for additions and new lines		$637,766,938
Miscellaneous charges not classified....		851,008
Total expenditures during year...		$638,617,976
Property retired or converted.........		$88,104,245
Adjustments		8,524,764
Difference between record value of grantor and purchase price of grantee in cases of roads sold, merged, consolidated, etc.		29,650,641
Total Credits		$126,279,650
Net increase during year		$512,338,326

PUBLIC SERVICE OF RAILWAYS.

The number of passengers carried during the year ended June 30, 1914, by roads represented in this abstract was 1,053,138,718. The corresponding number for the year ended June 30, 1913, was 1,033,679,680. The increase in the number of passengers carried during the year over corresponding returns for 1913 was 19,459,038.

The passenger mileage, or the number of passengers carried one mile, reported by roads represented in this statement, was 35,258,497,509. The corresponding return for 1913 was 682,624,529 less. The number of passengers carried one mile per mile of road was 144,278, as against 143,067 for the preceding year.

The number of tons of freight reported as carried (including freight received from connections) by roads represented in this statement, for the year ended June 30, 1914, was 1,976,138,155, while the corresponding figure for the previous year was 2,058,035,487, the decrease being 81,897,332.

The ton mileage, or the number of tons carried one mile, as reported by the carriers under consideration for the year ended June 30, 1914, was 288,319,890,210. The corresponding ton mileage as reported for the year ended June 30, 1913, was 301,398,752,108, from which it will be seen that the decrease in the ton mileage for the year ended June 30, 1914, under the returns for 1913, as applying to the roads represented in this abstract, was 13,078,861,898. The number of tons carried one mile per mile of road for the year ended June 30, 1914, was 1,176,923, as against 1,245,158 for the preceding year. The average number of tons of freight per train-mile was 451.80. The corresponding figure for the preceding year was 445.43.

The average receipts per passenger per mile, as computed for the year ended June 30, 1914, for the roads covered by this statement, were 1.982 cents; the average receipts per ton per mile, 0.733 cent. The passenger-service train revenue per train-mile was $1.34.496; the freight revenue per train-mile was $3.30.845. The average operating revenues per train-mile were $2.45.024. The average operating expenses per train-mile were $1.76.917. The ratio of operating expenses to operating revenues was 72.21 per cent.

REVENUES AND EXPENSES.

It should be noted that, as in the case of other figures in this abstract, the revenues and expenses shown below exclude returns for roads the gross operating revenues of which were less than $100,000 for the year. The operating revenues of the railways in the United States for the year ended June 30, 1914, herein represented (average mileage operated, 245,624.55 miles), were $3,047,019,908; their operating expenses were $2,200,313,159. The corresponding returns for 1913 (average mileage operated 242,657.12 miles) were: Operating revenues, $3,125,135,798; operating expenses, $2,169,968,924. The following figures present a statement of the operating revenues for 1914 in detail:

Freight revenue	$2,114,697,629
Passenger revenue	700,403,353
Excess baggage revenue	7,477,092
Parlor and chair car revenue	677,631
Mail revenue	55,062,961
Express revenue	75,541,569
Milk revenue on passenger trains ..	9,654,664
Other passenger revenue	6,229,246
Switching revenue	33,171,335
Special service-train revenue	1,777,780
Miscellaneous transportation revenue	6,995,174
Total revenue from operations other than transportation	32,930,397
Joint facilities—Dr.	1,242,795
Joint facilities—Cr.	3,643,872
Total operating revenues	3,047,019,908

Operating expenses, assigned to the five general classes, were:

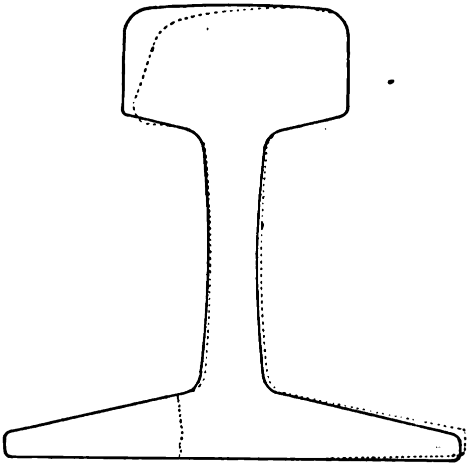
Maintenance of way and structures	$419,277,779
Maintenance of equipment	532,138,606
Traffic expenses	63,769,677
Transportation expenses	1,101,597,432
General expenses	83,529,665
Total operating expenses	2,200,313,159

With minor eliminations from the figures given above, operating revenues per mile of line operated including line operated under trackage rights averaged $12,400 and operating expenses $8,955 for the year.

Investigation of Accidents by the Division of Safety.

THE Chief of the Division of Safety has recently issued a report covering the investigation of an accident which occurred on the Southern Railway near Tuxedo, on August 9 1914. The accident was caused by the derailment of a passenger train which resulted in the death of a fireman and the injury of the engineman and nine passengers. The derailment in turn, was caused by the failure of a rail on the outside of a curve which was found to be broken in two places near the leaving end, the receiving end of the rail being intact for a distance of 29 feet 9½ inches. The track involved was an 85 pound rail, 33 feet in length. The rail was rolled in April, 1912, and laid in the track at this point in June, 1912.

The train consisted of one baggage car, two coaches and one Pullman sleeping car. In the derailment, the engine turned over to the left against the wall of the cut. The tender remained coupled to the engine and came to rest across the track in an upright position. The baggage



Amount of flange wear indicated by dotted lines.

car was derailed but slightly damaged, none of the other cars being derailed. The speed of the train at the time of the derailment was about twenty-five miles an hour.

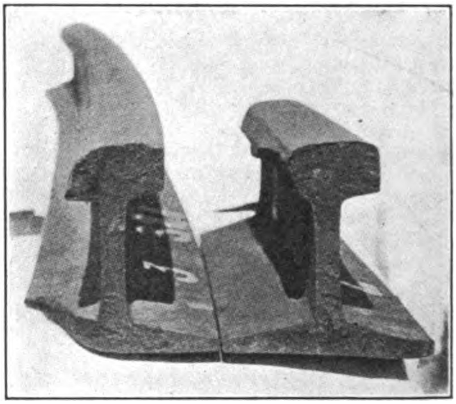
In his report of the accident and consequent investigation, H. W. Belnap, Chief of the Division of Safety, summarizes his results as follows:

The derailment of this train occurred on a 10° curve, on which rails of 85 pounds section were used. The outer rail of the track was broken in two places near its leaving end. Considerable flange wear was shown, 0.38 of a square inch of metal having been worn from the rail section on the gauge side and the top of the head.

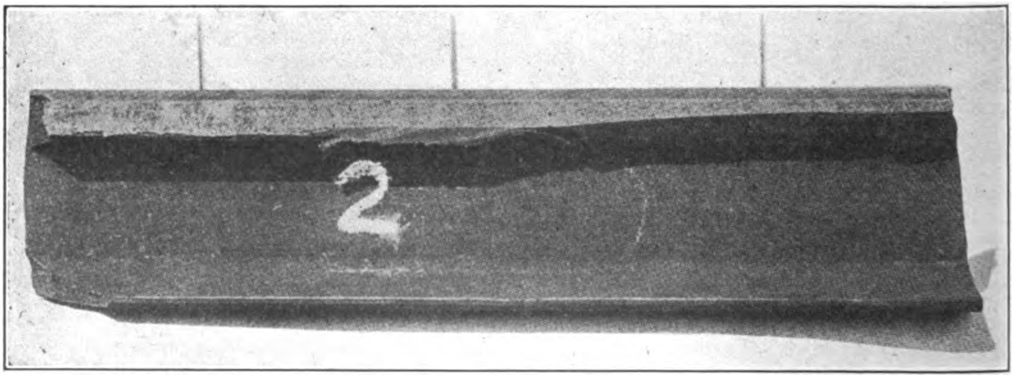
Flange wear of this extent necessarily indicates that the rail had been exposed to severe outward thrusts during its period of service in the track of two years and two months.

The initial line of rupture showed the immediate cause of failure was due to the rail receiving a load from some source which acted in the same direction as the forces which had occasioned the flange wear. But whether this rupturing force was applied in a horizontal or a vertical direction is a feature of the case upon which there is conflict between conditions as stated to exist immediately following the time of derailment and the evidence which the fractured ends of the rail themselves presented. The immediate rupturing force was applied to the side of the rail, causing the line of rupture to have its origin on the outside flange of the base at its edge. A secondary line of rupture traversed the rail in the opposite direction. If the rail was in its normal position, resting upon the ties and spiked down, then it would follow that the rupturing load was horizontal in its direction; on the other hand, if the rail was overturned or partially overturned, then the rupturing load was a vertical one.

The conclusions of the engineer physicist, based upon the appearance of the fractured ends, are to the effect that the rail at the time of its fracture was in an overturned or partially overturned position. The diminished strength of the rail in sidewise direction as compared with its ability to support a direct load upon the head is shown in the tests which were made during the examination of the rail for the purpose of ascertaining the cause of its failure. The rail yielded more readily in a sidewise direction, as would be expected from the cross-section shape.



FRACTURES AT LEAVING END OF FRAGMENTS THREE AND TWO RESPECTIVELY, TAKEN FROM LEFT TO RIGHT. INITIAL LINE OF RUPTURE ON FRAGMENT THREE, SECONDARY OF RUPTURE ON FRAGMENT TWO.



SIDE VIEW OF FRAGMENT TWO, GAUGE SIDE SHOWING WHERE METAL WAS SHEARED FROM INSIDE EDGE OF THE HEAD, DEEPEST PART OF THE CUT BEING AT THE LEAVING END.

The fracture of the rail is, therefore, more readily accounted for upon the assumption that it had turned on its side when it broke, rather than that it was resting upon its base on the ties in normal position.

Under ordinary conditions of loading the weight downward is the predominant force acting upon the rail; in fact, it is the only one at times. On curves a horizontal force is exerted, greater or less, according to the rate of speed of the train. This horizontal force tends to put an additional strain of tension on the outside flange of the rail. The application of such a force is obviously a very common occurrence, and is the force which the outside rails on curves in general have to sustain.

If this rail at the time of the initial break was in an upright position it necessarily follows that the margin in strength against sidewise thrust was particularly low under ordinary conditions of service, as it was overcome on this occasion by a train moving at comparatively low speed. Assuming the rail to have been upright, as would be inferred from the statements of those at the scene of the accident immediately after its occurrence, such a result as that witnessed in this derailment is one of far-reaching seriousness. It calls into question the safety of track in other similar situations on railroad curves throughout the country.

Very meager data have been acquired on the actual strains in rails, strains which they are daily called upon to endure. Such a state of affairs is probably without a parallel in the use of constructive materials. With railroad mileage in this country approximating 250,000 miles, or 500,000 miles of single rails, it is far from being creditable to engineering progress that strains in rails in the track have not been accurately investigated and defined—that a state of uncertainty in this question has been allowed to continue.

Touching upon this important feature, the comprehensive report of the committee on rails and equipment of the National Association of Railway Commissioners, at its twenty-sixth annual convention, held in Washington in November, 1914, contains this closing recommendation:

Finally, service stresses should be accurately ascertained and defined, and the overworking of materials on which the safety of life depends should not be permitted.

The failure of this rail is more readily accounted for by accepting the evidence presented by the fragments themselves, in which case conditions of track maintenance only are involved—that is, insecurity in spiking or other irregularity of track conditions. However, the statements of the employes of the road are directly at variance with the evidence presented by these fragments. Their statement of conditions existing immediately after the accident puts a more grave and serious aspect upon the cause of the failure. It virtually assigns as the cause of this accident a condition which is present in a much greater degree on curves where higher rates of speed are maintained.

The investigation of this accident again calls attention to the urgent necessity, noted in previous reports, for a thorough study of stresses set up in railroad tracks under varying conditions of traffic, speed, and curvature, to furnish accurate and reliable data regarding these stresses and the loads to which the track can safely be subjected, in order that dangerous conditions in tracks likely to lead to accidents may be detected and corrected.

Latest Report on Railway Accidents.

THE Commission has issued its Bulletin No. 53, which tabulates railway accidents occurring during the months of July, August and September, 1914. The number of persons killed in train accidents during these months was 181 and the number injured 2,555. Of the total killed 73 were passengers, 74 employes, including those not on duty, and 34 were other persons including trespassers. The total number of persons reported killed in all classes of accidents was 2,748, and the number of persons injured 47,215. Of the total killed, from all causes, 2,069 were included under the head of trespassers, non-trespassers and employes not on duty. While non-trespassers are included in this total, the great majority of those killed were undoubtedly trespassers. The report also states that 99 persons were killed and 28,604 injured in casualties reported as industrial accidents, which means accidents not involved in train operation but occurring to railway employes other than trainmen on railway premises.

Cost of Stopping Moving Train.

A SIGNAL engineer who has carefully investigated the matter to learn how much it costs to stop a train has figured it out that stopping a train of 520 tons and returning to a speed of fifty miles an hour is 42 cents. The cost of stopping a train of 2,000 tons from thirty-five miles an hour is $1.00.

The official has figured that each stop of a six-car passenger train from forty-five miles an hour costs 35 cents each. To stop a 1,500-ton train traveling at fifteen miles an hour costs 55 cents. The time that is lost in making a stop on a level straight track he has estimated at 145 seconds.

"Safety First" on the Lehigh Valley.

THE segregation of races in New York, not only in where they live, but in the work they do, is shown in a "Safety First" book just issued to the terminal employes of the Lehigh Valley Railroad, which is printed in four languages. Dock employes in Jersey City are almost all Poles, in Brooklyn they are principally Russian and on Manhattan Island they are Italians, with a mixture of English-speaking races.

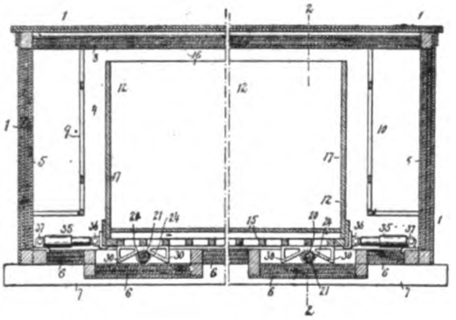
The booklet, which is printed in these four languages, is addressed to "The man who takes a chance." It is he who causes most of the injuries. Some happen to him and some to other men. The booklet has not been out long enough to have an appreciable effect, but the Safety First movement on the rail lines of the Lehigh Valley Railroad has decreased the deaths and injuries in the past year by nearly forty per cent. It is hoped there will be a similar reduction in the injuries to dock laborers.

Railway Patents Recently Granted by U. S. Patent Office

IN this issue the "Railway World" begins a new department in which will be given from month to month, a brief summary of the more important patents granted by the United States Patent Office, covering inventions which apply to the operations of steam or electric railways

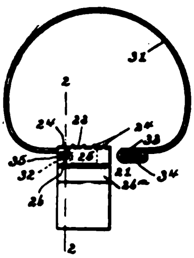
While it will not always be possible to present even a brief summary of all patents granted, an effort will be made to include all the more important ones likely to prove of real interest to the operating and mechanical departments.

1,132,876. FREIGHT-CAR. David E. Peterson and Isaac B. Ritter, Philadelphia, Pa. Filed Jan. 31, 1914. Serial No. 815,602. (Cl. 105—15.)



1. The combination of a car body, an auxiliary body movably arranged within said car body, rollers loosely mounted upon one of said bodies, tracks secured upon the opposite one of said bodies, said tracks and said rollers adapted to support the weight of the auxiliary body, and said tracks being inclined obliquely at either side of said rollers to retard the longitudinal movement of the auxiliary body within the car body.

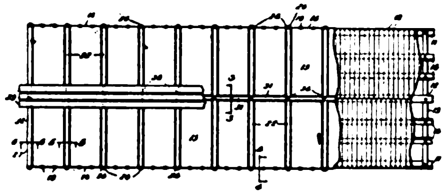
1,133,303. CAR-SEAL. William C. Martineau, Albany, N. Y., assignor to Universal Car Seal and Appliance Company, Albany, N. Y., a Corporation of New York. Filed Mar. 13, 1913. Serial No. 753,935. (Cl. 70—99.)



1. A car seal comprising a body of hard and relatively thick metal folded to form a box and front and rear walls depending below said box; a tag of relatively thin metal permanently secured between said walls; a shackle having ends adapted to be inserted within the ends of said box; and coöperating means within said box and on said shackle ends for preventing their separation.

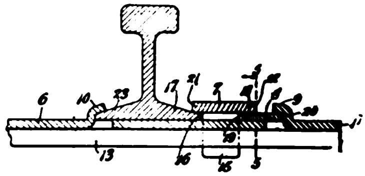
2. In a car seal of the class described, a box having internal shackle-engaging means; and a wire shackle one end of which is formed into a flat coil from within which the extreme end of the wire projects laterally at a low angle so as to form a hook adapted to engage said shackle engaging means, said coil being of a size to substantially close the aperture in said box.

1,133,372. CAR-ROOF. Raymond C. Dudley, Chicago, Ill. Filed Sept. 13, 1909. Serial No. 517,366. (Cl. 108—5.)



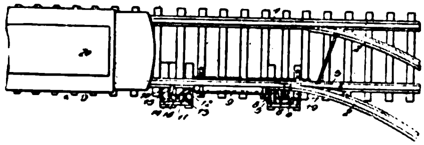
In a car roof, in combination; wooden top sheathing, metallic roof sheets formed with upstanding side and ridge flanges, held on the said sheathing and shiftable longitudinally of the car thereon, and spaced apart from each other at their sides and at the ridge; super-carlines arranged between the flanges of the roof sheets and spaced therefrom; transverse seam caps resting at their middle portions on the said super-carlines, and having horizontal extensions beyond the super-carlines and over the flange of the roof sheets and having depending flanges inclosing and interlocking with the side flanges of two sheets, and having their depending flanges spaced from the flanges of the sheets, the said side flanges of the sheets having downward extensions entering between the parts of the flanges of the seam cap, and the seam cap flanges having upward extensions entering between the parts of the flanges of the roof sheet, and formed with flat faces arranged to be brought to bear on the flat portions of the roof sheets to support and brace the said extensions of the seam caps; and ridge caps having flanges inclosing and spaced from the said ridge flanges of the sheets; the eaves edge of the said sheets being fixedly secured to the side of the car to normally maintain and to restore, after flexure of the car, the spacing between the roof sheets and the spacing between the roof sheets and the seam caps.

1,133,314. CROSS-TIE. Charles Partington, Cincinnati, Ohio, assignor to The Cincinnati Frog & Switch Company, Cincinnati, Ohio, a Corporation of Ohio. Filed Nov. 25, 1913. Serial No. 803,013. (Cl. 238—5.)



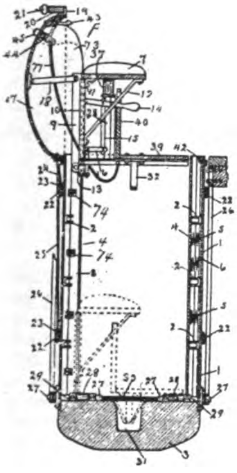
1. In a tie, the combination of a bar having near its end an outer and inner lug, a clamp located upon the tie between the lugs and having downturned ends engaging the bottom face of the bar, and a wedge adapted to be forced between the outer lug and the clamp and to have its end downturned into engagement with the bar.

1,133,146. SWITCH-THROWING DEVICE. FRANK A. JOHNSON, Danville, Ill., assignor of one-half to Chester B. Vail, of Danville, Ill. Filed May 14, 1914. Serial No. 838,595. (C. 104—24.)



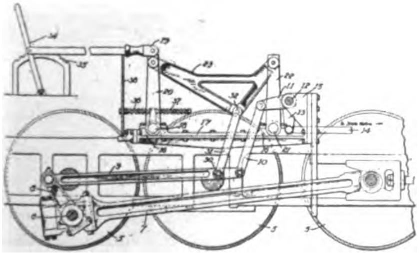
1. In a railway switch mechanism, the combination with a track section including a movable switch point, of a casing mounted contiguous to the latter, an angular arm fulcrumed at the junction of its arm sections on a vertical axis within said casing, means connected with one of the arm sections of said arm and said switch point to actuate the latter upon actuation of said arm, means engaged with the opposite arm sections of said angular arm to actuate the latter, and a corrugated spring actuated plate for coöperation with the extremity of the first mentioned section of said arm to retain the latter and correspond ingly said switch rail, in either of its adjusted positions.

1,130,354. SAFETY ATTACHMENT FOR LOCOMOTIVE-CABS. WILLIAM A. UTTZ, Fort Worth, Tex. Filed Aug. 25, 1914. Serial No. 858,447 (Cl. 105—205.)



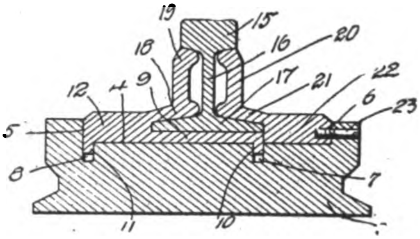
1. A safety attachment for the cabs of locomotives comprising a casing attached to the cab and provided with a lid, a seat provided with means for holding the lid in open position, and means by which a person can, after entering the casing, close the lid.

1,132,692. ENGINE VALVE-GEAR. WILLIS H. SMITH, Knoxville, Tenn. Filed July 22, 1914. Serial No. 852,411. (Cl. 121—99.)



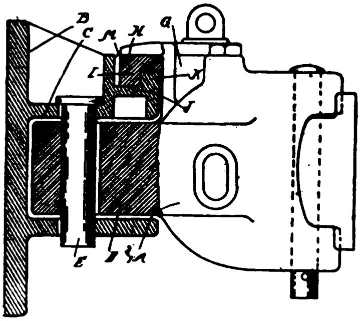
1. A steam engine valve gear comprising a pitman, an auxiliary crank connecting the same with the drive wheel, connections from the said pitman to the slide valve, a link pivotally connected with the pitman and furnishing a fulcrum therefor, a pair of arms arranged parallel and pivotally mounted at their lower ends, a rocker member connected with the upper ends of said parallel arms, the said fulcrum link being pivotally connected to said rocker member at a point below the points of connection between said rocker member and the parallel arms, so that lines drawn to connect said three points would form a triangle, said fulcrum link being of the same length as the said parallel arms, and means for rocking the parallel arms to adjust the fulcrum link, substantially as described.

1,133,593. COMBINED RAIL TIE, CHAIR, AND JOINT. GEORGE VRANAY, Braddock, Pa. Filed June 10, 1914. Serial No. 844,238. (Cl. 239—6.)



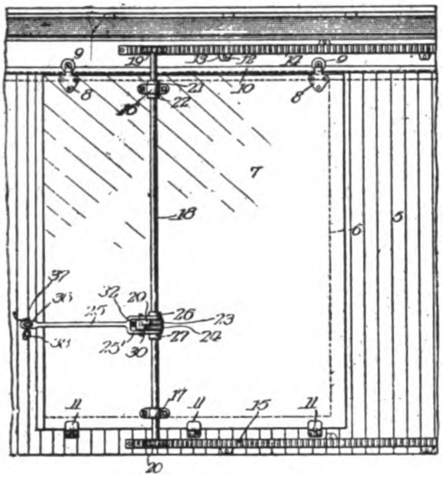
1. The combination with a tie body having a depression in the top face thereof, to form a seat and side shoulders, said seat being provided with a pair of longitudinal pockets, one of which is contiguous with a side shoulder; of a chair plate provided at its ends with depending flanges snugly fitting in said pockets and abutting one of said side shoulders, an extension on one side of the chair plate adapted to overlap the base flanges of a rail and forming a fish plate for one side thereof, a locking plate between the other side shoulder and said chair plate, an additional extension on said locking plate adapted to overlap the opposite base flanges of a rail and also forming a fish plate therefor, and fastening means between said locking plate and the adjacent side shoulder of the tie body.

1,132,574 LOCOMOTIVE CAR-COUPLING. MASON B. GIBERSON, Detroit, Mich., assignor to Monarch Steel Castings Company, Detroit, Mich., a Corporation of Michigan. Filed Mar. 30, 1914. Serial No. 828,381. (Cl. 213—42.)



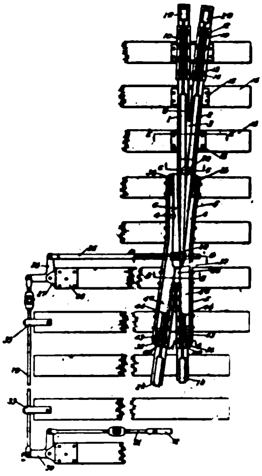
1. In a car coupler, the combination with the coupler head and shank, of a pocket fitting for receiving said shank providing for lateral angular movement thereof, a pivot-pin for attaching said shank to said fitting, and interlocking means between said pocket fitting and coupler at the upper outer edge of the former, coöperating with the bearing of said shank in said pocket fitting to hold the coupler from drooping.

1,132,683. **CAR-DOOR-OPERATING MECHANISM.** Bror T. Peterson, Chicago, Ill., assignor of one-third to Ben R. Peterson and one-third to William J. Maxwell, Chicago, Ill. Filed June 10, 1914. Serial No. 844,139. (Cl. 89—92.)



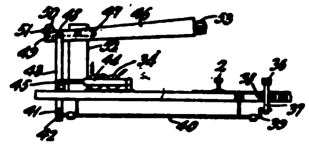
1. The combination with a car body having a side opening, and a door mounted to slide across said opening, of rack-bars secured to the outer side of the side wall of the car above and below said opening, journal bearings on the outer side of the door adjacent to the upper and lower edges of the latter, a vertical shaft mounted in said bearings and carrying on its upper and lower ends spur gears meshing with said rack-bars, and shaft-operating means secured to said shaft intermediate said bearings.

1,132,779. **FROGLESS SWITCH FOR RAILWAYS.** Charles H. Krauss, Birmingham, Ala., assignor to Morrison Frogless Switch Company, Birmingham, Ala., a Corporation of Alabama. Filed Sept. 8, 1914. Serial No. 860,820. (Cl. 104—99.)



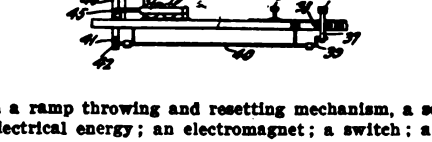
1. In a frogless switch, the combination of a frog point having divergent rail treads, means to connect said treads to track rails, a track structure with which said movable frog point co-acts and which has divergent treads connected to track rails, and an anti-friction bearing interposed between the frog point and the track structure, as and for the purposes described.

1,132,582. **TRAIN-CONTROL SYSTEM.** David L. Hopkins, Bryson, N. C. Filed Mar. 22, 1913. Serial No. 756,187. (Cl. 246—59.)



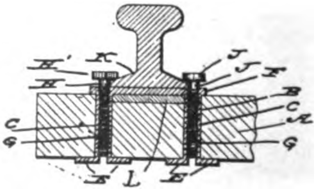
In a ramp throwing and resetting mechanism, a source of electrical energy; an electromagnet; a switch; a normally open circuit including such source, said electromagnet and said switch; train actuated means to close the switch as the train enters the block; a post; a T-shaped member attached to the post; a ramp arm pivoted to said member for vertical movement; coöperable means carried by said member and the ramp arm to limit the swinging movement of the arm; a link having an offset lower end and operably connected at its upper end to the ramp arm; said offset arm having a tension in one direction; a fixed stop in the path thereof; an armature under the influence of the electromaget for engaging the offset end of the link to release it from the stop; the energization of the electromagnet attracting the armature to release the ramp arm, and train actuated means adjacent the post and connected to the link for resetting the ramp arm.

1,132,717. **RAILWAY-SWITCH.** William G. Harlan, Centralia, Wash. Filed May 20, 1913. Serial No. 768,864. (Cl. 104—23.)



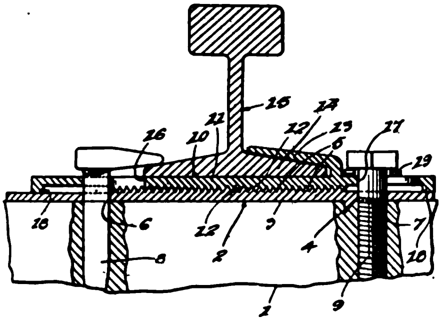
1. A railway switch of the character specified comprising pairs of pivoted trip levers, a vertical shaft connected with one of the tongues of the switch, means including wire cables for connecting the trip levers with said shaft and locking means comprising a pair of longitudinally disposed locking keys and a transverse locking bar connected with the free ends of the switch tongues and provided with notches alternately engageable with the locking keys whereby the switch may be securely locked in thrown position.

1,132,827. **RAIL CHAIR AND FASTENING.** Mary Busch, McArthur, N. D. Filed June 22, 1914. Serial No. 846,508. (Cl. 238—2.)



In combination with the rails and tie, of chairs resting upon the tie and supporting the rails, sleeves depending from the chairs and each formed with a slit to provide portions for engaging the tie, said sleeves having their upper portion threaded, and fastening bolts screwed into said sleeves and having heads engaging the foot of the rails.

1,133,898. TIE-PLATE. **Marcel Vitas**, Lucesco, Pa. Filed Oct. 9, 1914. Serial No. 865,927. (Cl. 238—2.)



A railroad tie plate including a base plate, a rib extending transversely of the base plate, said rib being arranged to extend into a tie to hold the plates in place, teeth formed on the base plate, a top plate, teeth formed on the top plate, the teeth on both plates being arranged to engage each other to hold the plates against relative movement, longitudinal ribs extending across the sides of the top plate and holding said plate in spaced relation to the bottom plate, the bottom plate being provided with a spike-receiving aperture and a bolt-receiving aperture, the top plate being provided with transversely extending slots,

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Train Movement on the Pennsylvania.

THE Pennsylvania Railroad operated 70,196 passenger trains in March and 64,067 of them—91.3 per cent—arrived at their destinations "on time." On the New York Division—that part of the railroad between New York and Philadelphia, and the division having the heaviest passenger traffic of the railroad—11,146 trains were operated and 10,166, or 91.2 per cent of them, arrived "on time." The Pittsburgh Division operated 5,292 trains and 4,999, or 94.5 per cent of them made a perfect record. On the electric line of the West Jersey & Seashore Railroad, out of 2,480 trains, 98.2 per cent arrived "on time."

The Rock Island Failure.

THE largest railroad ever placed in the hands of a receiver in this country found its way into the Federal Courts of Chicago during the week of April 19th, because of its inability to meet some five million dollars of short-term obligations—the Chicago, Rock Island & Pacific Railway Company. Singularly enough, the failure of this company, with a capital of some $400,000,000, was but little reflected in the markets of the country, and the apathy attendant upon its passing from the control of the stockholders to that of the courts forms a basis for the belief that the condition of the company was well known in certain circles and the probability of the receivership in some measure discounted. Of course, Rock Island shares fell, the stock dropping nearly ten points during the day, while the issue of the holding company receded practically to nihil, but the general list throughout witnessed no sympathetic depression whatsoever.

In discussing this receivership, the Banking House of Hambleton and Company of Baltimore, has made the following statement:

While there may be more than a little truth in the statement accredited to one of the receivers, "that the real underlying trouble with the road is * * * the Government's attitude," and that what is required is higher rates and lower costs, critics of the system of financing adopted by the company will insist that the financial methods were in no small measure responsible for present conditions, inasmuch as it has been freely charged in many quarters that the line was top-heavy from overcapitalization and that the effort to carry the same sapped all of the working capital of the company and precipitated insolvency. We have the word of one of the leading railroad executives in this country that common carriers should attain and lay aside a surplus in the same manner, and, if possible, somewhat to the same extent that a bank does, in order that it may have the funds wherewith to cope with emergencies and take advantage of legitimate opportunities whenever they present themselves. Such a proposition is undoubtedly sound, but the difficulty about the matter is that were efforts to inaugurate such a system started, there would at once be a hue and cry to the effect that the lines were waxing rich, fat and prosperous at the expense of the country, and that the time had arrived when the Commerce Commission, or similar bodies, should apply the paring knife to the company's tariffs. The failure of the Rock Island to have or maintain any such surplus is, of course, responsible for the fact that it had to consent to the receivership, presenting the anomaly of a four-hundred-million-dollar corporation confessedly unable to pay a $17,000 creditor! The Rock Island is a great road and has been doing magnificent service in the West, each year witnessing an appreciable gain in its position as one of the instruments in the progressive development of the interior of this country. Between 1902 and 1914, the road's passenger and ton mileage each increased approximately 175 per cent, while its net income rose from some $12,000,000 to $17,000,000, during which time it has disbursed some fifty million dollars in dividends and spent more than that sum on the improvement of its lines.

New York advices teem with bitter and drastic criticism at the action of the officers of the Rock Island system in failing to apprise the public at large of the exact situation of affairs, so that they would have been in a position to have attempted to liquidate their holdings gradually before the crash came, attention being called to the fact that the conversion of the company's collateral bonds into stock a short time ago had justified the hope that the company would escape the receivership shoals, inasmuch as the company had always earned interest on its securities. Though the credit of the company was known to be doubtful, nevertheless because of the fact that the line is in good physical condition, which is confirmed by the receivers, it was thought that a failure would be avoided.

Practically all of the stock of the railway company was distributed when interest was defaulted on Rock Island Railroad collateral trust 4s secured by this stock, which is now selling at around 21, whereas some fifteen years ago the stock was worth over $200 per share. It is certainly to be hoped that the court officers in charge of the company's affairs are not too optimistic in stating that the receivership can probably be terminated inside of a year, at which time the affairs of the corporation should be reorganized on a business basis which would enable it to anticipate a successful future.

STATE COMMISSIONS.

New York.— The Up-State Public Service Commission granted approval to the issue by the Erie Railroad of $1,000,000 of its general lien bonds. The issue will be used as a part of the general new scheme of Erie financing by these bonds. Part of the proceeds will go to the treasury to reimburse it for capital expenditures and part will be used as collateral on the $10,000,000 indenture to the Bankers' Trust Company for one year five per cent collateral gold notes dated April 1, 1915.

The indenture takes care of the securities of the Erie & Jersey and the Genesee River Railroad securities, the handling of which issues by this method was recently approved by the Commission. The Erie & Jersey and the Genesee River are the two principal cut-offs on the Erie line by which the excessive grades between New York and Chicago are eliminated, enabling the Erie to compete for tidewater business with trunk lines to the north running into New York and with others to the south connecting with other ports.

A "paper package" is a "paper package" and not "baggage," no matter how well it may be disguised with a card-board suit box inside the paper and straps and cords and handles outside. The Public Service Commission of the Second District has so decided and holds that the railroads cannot be compelled to check such a contrivance as "baggage" under the established tariffs permitting 150 pounds to be transported free with a passenger ticket.

The complainant in the case was a woman, Sara W. Lyons, and the New York Central was the road which refused to check her "package". In its order the Commission tells of the necessarily rough handling to which the railroads say baggage must be subjected in order that it may be promptly handled. Not knowing the contents of "paper packages," albeit in card board boxes, the railroad contended that its baggagemen and employes would either have to handle such material much more slowly and carefully than that in leather or other stronger containers, or else subject the contents to damage, for which, under the law, the company would be liable.

The Commission recognizes the right of the railroad to require that baggage offered for transportation be enclosed in containers which reasonably protect the contents. Such protection, the Commissioner holds, is not afforded by the paper-wrapped cardboard box.

Michigan.—Railroads in the Southern Michigan Peninsula have been granted by the State Railroad Commission the five per cent increase they have been asking for two years. Advances on some commodities were allowed last year.

The present advance applies to all freight with the exception of coal, coke, iron ore and sugar beets. Railroad revenues in the territory affected will be increased about $1,200,000 a year.

LEGISLATION.

Opposition to New Railway Legislation in Indiana.—The railroads of Indiana are making a strong effort to defeat bills introduced in the General Assembly of that State and which if enacted, will add about $2,500,000 a year to the expense of the companies while hampering transportation service, according to members of the Railroad Committee representing the carriers. The bills against which the carriers are directing their opposition are to limit the length of freight trains to one-half mile and to require the railroads to employ telegraphers to handle all train orders.

Late developments indicate favorable consideration to the petition of the railroads for permission to advance passenger fares to 2½ cents a mile, Governor Ralston having publicly endorsed the movement in a letter to the Central Electric Railway Association convention suggesting the Public Service Commission be empowered to advance fares not more than one-half cent a mile.

The railroads hold that the bill to limit the length of trains would burden them with an additional expense of at least $2,000,000 a year, a sum greatly in excess of the estimated increase in passenger revenue. Railroad officials say the bill would mean the slowing up of transportation service as a result of congestion if the maximum number of cars composing a freight train were prescribed by law and more trains were thus required to handle the traffic. Industries requiring large supplies of cars would be hampered if the railroads were prohibited by law from handling a full quota of equipment to a plant in one train. It is claimed, for example, that coal mines, cement plants, grain elevators and factories which require 100 cars and more a day, which are handled frequently in one train, would suffer a curtailment of their supply under the provisions of the proposed law or else the railroads would have to assume the expense of employing a crew of six trainmen to handle the 38 cars needed.

The railroads point out that they would experience a heavy economic loss by the enactment of the bill, as they would be prevented from deriving the benefit of improvements and betterments which have been made at a cost of $150,000,000 to reduce grades and eliminate curves, build stronger bridges and lay heavier rails, install automatic signals, purchase larger engines and cars and increase the capacity of terminals.

Figures prepared by the Indiana railroads show that it would cost the carriers in this state $250,000 a year to comply with provisions of the bill to compel the employment of telegraphers exclusively to handle train orders.

Officials who have dispatched trains by telegraph say that the telephone, now in use on many of the roads, makes it possible for a dispatcher to keep in close touch with trains on all sections of the line and give orders quickly, while at the same time he is better equipped to meet an emergency.

Railroad officials point out that advocates of the bill disclosed its principal purposes in a communication which has been distributed, cautioning that "under no consideration should any reference be made to the fact that the bill will provide more positions for telegraphers."

With the telephone system of dispatching in use it is possible for the public to notify a train dispatcher in time of emergency, and with side-tracks so connected up, the entire railroad line pulsates through the official directing the movement of trains.

A protest has been made by six hundred firms through the Secretary of the Indiana Grain Dealers' Association and the Indiana Millers' Association, against the bill to compel the railroads to limit the length of freight trains to one-half mile on the ground that such a law would interfere seriously with the marketing of grain products in this State.

LEGAL.

Briefs in Railway Mail Case.—Attorney-General Gregory of the United States Department of Justice, has filed in the Supreme Court the Government's brief in the railway mail pay cases. The brief is in reply to the suits of the Chicago & Alton and the Yazoo & Mississippi Valley railroads, which took appeals from the Court of Claims. The railroads contended that Postmaster-General Burleson's order number 412, regulating the methods of computing the weight of mail matter, was illegal. The Attorney-General denies this assertion. The case is of the utmost importance to the railroads, of which 800 are affected.

The Government brief contends that the order issued by the Postmaster-General is within his discretionary power and therefore legal. "For the purposes of this case," the brief declared, "it may be said that the only restrictions placed upon the Postmaster-General by the statute were that he must keep within a maximum compensation and must weigh the mails for a period of not less than 90 successive working days. Having done this, he was at liberty to exercise his discretion in all other matters. Order 412 was in keeping with this discretion and not, as appellant asserts, contrary to the statute. Having carried the mails thereunder, appellant cannot recover damages."

In referring to the brief filed by the New York, Ontario & Western, the Messemer & Lake Erie and other Eastern roads are amici curiae the Government brief declares:

"The Government, however, cannot conclude without deprecating the harsh and unwarranted criticism upon the splendidly worded and well reasoned opinions of the Court of Claims, which appear in the brief filed for the New York, Ontario & Western and other roads as amici curiae."

More than eight hundred railroads are interested in the claims involved in this case, which, in the aggregate, total approximately $35,000,000.

GENERAL NEWS NOTES.

Pennsylvania Railroad Mileage.—The Pennsylvania Railroad has recently issued its annual record of transportation lines which shows that the system now has 11,794.43 miles of line, of which 3,734.10 miles are double-tracked, 821.80 miles have three tracks, and 635 miles have four tracks. In addition there are 9,433.34 miles of side tracks, making a total of 26,419.24 miles of trackage.

The Pennsylvania System now operates in Delaware, the District of Columbia, Illinois, Indiana, Kentucky, Maryland, Michigan, Missouri, New Jersey, New York, Ohio, Pennsylvania, Virginia and West Virginia. In these states reside more than half of all the people of the United States.

New System of Coat Decoration Installed by Baltimore and Ohio.—When the summer suits are donned this season by the uniformed forces of the Baltimore and Ohio Railroad, the passenger trainmen, station employes and others who come in direct contact with the public will be decorated by the management with badges of honor upon the basis of length of service and as an evidence that the company venerates them for the years spent in its employ. The coat sleeves of the uniforms will be decorated with gold bars and stars, the bars signifying five years' service and the stars twenty-five years with the road.

This plan of the Baltimore and Ohio of decorating its uniformed employes carries out along broader lines the practice of railroad companies of extending pass privileges to employes and their families on the basis of years of service; and it is the purpose in supplementing the pass regulation to extend proper recognition to its men so that the public may form an idea as to the training they have had as its servants.

California Orange Day.—On Saturday, March 20th, "California Orange Day" was observed throughout the United States and the celebration in the office of J. E. Corfield, general agent of the Union Pacific Railroad, Pittsburgh, Pa., went a long way towards advertising the celebrated "Sun Kist" oranges of California. A most attractive window display in the form of an orange tree, on the branches of which luscious fruit was growing and around the base of which was scattered a supply of large and delicious oranges, attracted a great deal of attention and brought forth many favorable comments. These oranges were plucked especially for this occasion and rushed to Pittsburgh via the Union Pacific Railroad, arriving in the remarkable time of eight days and were handed out to the friends and patrons of the Union Pacific.

Developments in Government Railroad Activities in Alaska.—President Wilson has announced the selection of the route of the Alaska Railroad to be built by the Government. The road is to extend from Seward, on Resurrection Bay, to Fairbanks, a distance of 471 miles. This will include the Canadian owned Alaska Northern road, already built, from Seward to Turnagain Arm. This road is to be bought by the Government from its present owners for $1,150,000. A branch line is to be built from Matanuska Junction into the Matanuska coal field, a distance of thirty-eight miles.

The route adopted is known as the Susitna route, and extends from Seward, on Resurrection Bay, to Fairbanks, on the Tanana River, a distance of 471 miles. It is to be a standard gauge road. A side line is to run from Matanuska Junction into the Matanuska coal field, a distance of thirty-eight miles. The road is to be built with its present base at Ship Creek, on Cooks Inlet, and from this point it is expected that the Matanuska coal will be shipped during a greater portion of the year.

TRAFFIC AND RATES.

Fares to the Panama Exposition.—The visitor to San Francisco in 1915 will have a choice of routes that will give an opportunity to sightseeing and study never before equalled in the history of Expositions. Any one of the many trans-continental lines leading westward may be used. There will also be a route by steamship from Atlantic Coast and Gulf ports direct to San Francisco through the Panama Canal.

The following rates have been announced by the railroads:

Denver to San Francisco and return	$45.00
Omaha, Lincoln, St. Joseph, Atchison, Topeka, Wichita, Kansas City	50.00
Oklahoma City	51.60
Houston, Texas	52.50
Des Moines	55.68
St. Louis, Memphis, New Orleans, Little Rock	57.50
Chicago	62.50
Minneapolis and St. Paul, via Omaha	63.85
Minneapolis and St. Paul, via Portland	74.45
*Cincinnati	71.10
*Detroit	73.50
*Atlanta, Ga.	74.25
*Columbia, S. C.	74.40
*Cleveland	76.20
*Pittsburgh	81.20
*Jacksonville, Fla.	82.00
*Buffalo	83.50
*Charleston, S. C.	86.25
*Raleigh, N. C.	91.95
*Wilmington, N. C.	92.10
*Washington, D. C.	92.30
*Philadelphia	92.95
*New York	94.30
*Bridgeport, Conn.	95.85
*Boston	97.00
*Portland, Me.	107.75

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*Subject to change.

Establishment of Transcontinental Express Service by the Baltimore and Ohio.—Transcontinental express service was inaugurated March 30th, by the Baltimore and Ohio Railroad between New York, Philadelphia, Baltimore, San Francisco and Los Angeles, handling shipments of Wells, Fargo & Company through the Chicago and St. Louis gateways on the quickest schedule attempted between the leading cities on the two coasts.

Imports and Exports for February.—The latest reports from Washington show that February, 1915, imports totaled $125,123,391, against $148,044,776 in February last year and $149,913,918 in February, 1913. February exports rose practically $100,000,000 above the highest record shown by any prior February, being $298,727,757, against $173,920,145 in February, 1914; $193,996,942 in February, 1913; and $198,844,326 in February, 1912, the former high-record February. February imports fell $4,644,499 or 3.7 per cent, below the point touched in August last, while February exports rose $188,360,263, or 171 per cent above the low point touched in August.

The excess of exports over imports in February, 1915, was $173,604,366, against $25,875,369 in February last year, and more than double the next largest February export balance of $83,004,381 recorded in 1908.

ORGANIZATION NOTES.

Passenger Traffic Officials Hold Annual Convention at San Francisco.—The American Association of Passenger Traffic Officials held its 60th Annual Convention in San Francisco on April 15th and 16th. Two additional days were spent in the city in order to give those attending the convention an opportunity to visit the Exposition. It is anticipated that the visit of these passenger traffic officers to the Pacific Coast will prove of great practical value to that locality as some of the most important lines in the United States were represented and the advantage of having these men see for themselves and get first-hand information regarding the attractions at the Exposition, is sure to bring excellent returns in assisting to stimulate business for these great Fairs.

Meeting of New York Railroad Club.— The New York Railroad Club held the regular monthly meeting on April 16th at the building of the United Engineering Societies. Mr. G. R. Henderson, consulting engineer, Baldwin Locomotive Works, presented a paper with lantern slide illustrations on: "Recent Developments in Locomotives."

Railroad Telegraphers to Hold Biennial Session in May.—The order of Railroad Telegraphers, Despatchers, Agents and Signalmen of America will hold its Biennial Session and its Ninth National Convention in this city beginning on Monday, May 17th at the Grand Central Palace. The National Railroad Supply and Service Exposition, which will be given under its management, will open at the same time.

The purpose of the Order, which is a labor organization, is to settle differences between railroads and members of the Order without resorting to strikes.

The Exposition, which will be held in connection with the Convention, is educational in character. Many interesting safety appliances will be shown. More than 200,000 invitations to the Exposition have been distributed among railroad officials and workmen, and a large number of acceptances have been received.

CONSTRUCTION.

Wilkes-Barre Connecting Railroad Completed.—After nearly three years of active and extensive construction work, the Wilkes-Barre Connecting Railroad—a new belt line railroad seven miles long—has just been completed and placed in operation.

The new line, lying to the northwest of the city of Wilkes-Barre, forms a connecting link between the Pennsylvania Railroad and the Delaware & Hudson Railroad, and extends from Buttonwood, a point on the Pennsylvania Railroad about 3.3 miles west of Wilkes-Barre station to Hudson, a station on the Delaware & Hudson Railroad about 3.3 miles east of Wilkes-Barre Station.

Built jointly by the Pennsylvania Railroad and the Delaware & Hudson Railroad, the connecting branch not only facilitates the interchange of traffic between the two roads, but the transfer of so many freight trains to the new route instead of through the business centre of Wilkes-Barre at grade is a material benefit to that city and the railroads.

New Construction Work between Charlotte, N. C., and Greenville, S. C.—In order to provide greater trackage facilities in advance of the construction of double track, Southern Railway is installing modern passing tracks of the lap type at six points between Charlotte, N. C., and Greenville, S. C., on the Washington-Atlanta Line.

These sidings will add greatly to the carrying capacity of the line and each of them will accommodate four of the largest freight trains handled on this division. They are being put in at Vantine, Archdale, Mt. Zion, Fair Forrest, Taylor and Gaffney. At each of these points an interlocking plant is being installed so that operation in the towers will control the entrance switches at the laps together with distant signals for regulating the approach of trains to switches. This will make it unnecessary for trains to stop before entering the sidings which will greatly facilitatethe movement of traffic.

The passing tracks are being built to main line standards so that they can be used as double track when the remainder of this part of the line is so equipped and the interlocking plants are so arranged that they can be used in connection with electric automatic block signals which will be put on the entire line when it is double tracked.

EQUIPMENT.

New Equipment on the Union Pacific.—The Union Pacific System recently spent several million dollars in new locomotives and cars in anticipation of the extensive trade to California. All of the new cars and engines have now been received.

The new passenger cars were built by the Pullman Company and are solid steel, being equipped with the latest improvements. For instance, the coaches and chair cars have sanitary bubbling drinking fountains, and the diners are electrically lighted by axle device as well as being wired for electric lighting by dynamo system, which latter is used in all Union Pacific trains.

The order, which has just been filled, was for 107 cars, divided as follows:

21	dining cars
30	chair cars
10	coaches
8	observation cars
2	parlor cars
26	baggage cars
10	postal cars
107	new cars

This system has also received forty new superheater passenger locomotives of the Mikado and heavy Pacific types.

Pennsylvania in Market for Large Equipment Orders.—The Pennsylvania Lines West of Pittsburgh are making inquiries for prices for equipment material and for new equipment. The inquiries sent out by the management in Pittsburgh cover: 6,500 freight cars, 50 locomotives, 35 all-steel passenger cars.

These inquiries are not included in those made by the Lines East of Pittsburgh on Saturday. The Lines West of Pittsburgh have some 90,000 freight cars in all, with an annual normal vacancy of 5,000 cars. Last year the Pennsylvania Lines West ordered no new cars. Any cars ordered by the Pennsylvania Lines West will be as replacements to equipment, and not as additions.

Counting the inquiries made by the Lines East of Pittsburgh and those by the Lines West of Pittsburgh, the Pennsylvania System has asked for prices on material and equipment which includes: 16,245 freight cars, 194 locomotives, 181 all-steel passenger cars.

PANAMA FAIR NOTES.

Special Events at the Panama-Pacific International Exposition.—For the first time in the history of any world's Exposition, the Panama-Pacific International Exposition has arranged a program of special events that will cover the entire 288 days that the Exposition will remain open.

In all there are approximately 2,000 special attractions, averaging from three to ten in number each day.

Obviously, it is impossible to give each of these events space upon a program, and it should be remembered that, in addition to these special attractions, there are a great number of regular events which will be repeated daily throughout the Exposition period.

The 500 Congresses and Conventions meeting in San Francisco during the Exposition period (the greatest number ever congregating in one place during the history of the world), covering, as they do, almost every branch of human endeavor, are not herein summarized, though each is a special attraction of itself that will hold the interest of thousands of people.

The musical program for the Exposition period is most elaborate and world embracing. It includes competition among the finest bands of the various nations, many concerts by massed bands, and competitions for prizes among the famous choirs and singing societies of this and other countries.

Recitals upon the great pipe organ in Festival Hall will be given twice daily by eminent players.

Special days will be observed at the Exposition for foreign countries, states of the American Union, and American cities. Definite programs have been arranged for each of these occasions, it being determined by the Exposition that they are to be something more than days set down on the Exposition program. To this end it has been planned that each of these days be marked by a program of interest, and that famous musical organizations, military bands and troops be employed in the observances.

Southern Pacific's Motion Picture and Lecture Program at World's Fair.—All of the communities along the lines of the Southern Pacific will be represented on the motion picture and lecture program being given free to the public at the

Company's building in the Panama-Pacific International Exposition. Competent speakers, each day, at intervals of about one hour apart, are explaining to visitors from the East and Middle West, as well as from Coast points, what a land of wealth and opportunity is to be found West of the Rocky Mountains. The motion pictures have been taken mostly for this especial purpose and from their variety are of the liveliest interest to both tourist and prospective settler.

No charge whatever is made for admission. The Southern Pacific's object has been only to render a service by exploiting the advantages of the communities it traverses, believing that by encouraging visitors to see the natural advantages of the West, it has thereby sufficiently served its own interest.

Southern Pacific's Fair Folder.—Planned for free distribution among people who are contemplating a trip to California and especially in the East and Middle West, the Southern Pacific Company has issued an edition of one hundred thousand copies of a folder showing views of the Panama-Pacific International Exposition on opening day.

The title of the publication is "Opening Day Views of San Francisco's Exposition Grounds, February 20, 1915, as they Appeared to a Quarter of a Million People." Each page is about the size of a standard magazine and the folder itself can readily be mailed.

It shows among others a view of the Tower of Jewels, the Fountain of Energy, the New York State Building, the Avenue of Palms, the Tower in the Court of the Universe, the Tower in the Court of Abundance, the Palace of Horticulture, the Italian Towers in the Court of Flowers, and the Southern Pacific Building.

The half tones are large and clear, appropriately arranged. The lettering is neat and attractive. The text accompanying the pictures explains the views so that the fair visitor may know something about the arrangement of the buildings before he arrives in San Francisco.

Personally Conducted Tour over Pennsylvania Railroad.—For the benefit of those who contemplate spending their vacations in the West this summer, the Pennsylvania Railroad announces that it has just completed arrangements for a 24-day personally conducted tour which will include visits to the Panama-Pacific International Exposition, the Panama-California Exposition, the Grand Canyon of Arizona, the Pacific Coast resorts and the Colorado Rockies.

The special train, which is scheduled to leave New York on Saturday, August 7th, and return on August 30th, will be made up of all-steel Pullman equipment, including a large baggage car, dining car, drawing room and compartment sleeping cars and an observation car. The train will be occupied continuously, except during the periods spent in Los Angeles and San Francisco, where hotels will be used. At all other points the special will be side-tracked for occupancy and tourists will have the use of same for meals and sleeping accommodations.

To relieve passengers of the many annoyances incident to traveling indenendently, a representative of the Pennsylvania Railroad will accompany the party, taking charge of all arrangements for the entire trip. A chaperon will look after the ladies unaccompanied by male escorts.

Increased Travel via Transcontinental Routes.—On account of the largely increased Pacific Coast travel, incidental to the Panama-Pacific International Exposition, San Francisco and the San Diego Exposition, the Denver & Rio Grande-Western Pacific inaugurated new and expedited service between Denver, Colorado Springs, Pueblo, Salt Lake City and San Francisco on April 12th. On that date the Rio Grande transcontinental service was increased by the addition of two trains between Denver and Salt Lake City, making four trains daily in each direction. The Western Pacific added two trains to its San Francisco service, making three in each direction between Salt Lake City and the Golden Gate. New Steel trains, observation cars, through chair cars, etc., etc., are features of the new Exposition service. "The Scenic Limited," a new all-steel observation train, is the first solid train to be operated between St. Louis and San Francisco and commenced running Monday, April 12th, and daily thereafter.

ELECTIONS AND APPOINTMENTS.

Executive.

P. B. Bradley, president, Charlotte Harbor and Northern Railway. Headquarters, Boston, Mass.

Richmond Dean, vice-president, Pullman Company. Headquarters, Chicago, Ill.

James M. Gifford, first vice-president and general counsel, Charlotte Harbor and Northern Railway. Headquarters, New York.

George J. Gould, chairman of the Board of Directors, Texas and Pacific Railroad. Headquarters, New York.

T. J. Kennedy, co-receiver, Algoma Central and Hundson Bay Railroad. Headquarters, Sault Ste. Marie, Ont.

Le Roy Kramer, vice-president, Pullman Company. Headquarters, Chicago, Ill.

J. C. Nelms, auditor, Norfolk Southern Railway. Headquarters, Norfolk, Va.

Edward J. Pearson, first vice-president, Texas and Pacific Railway. Headquarters, New Orleans, La.

Alexander Robertson, vice-president, Missouri-Pacific-Iron Mountain System.

C. S. Runnells, assistant to president, Pullman Company. Headquarters, Chicago, Ill.

F. H. Silvernail, assistant to the president, Lehigh Valley Railroad. Headquarters, New York.

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William L. O'Connell, chairman of the Illinois Public Utilities Commission.

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Safety.

George Bradshaw, safety engineer, Grand Trunk Railway. Headquarters, Toronto, Ont.

H. J. Plumhof, safety commissioner, Oregon Short Line. Headquarters, Salt Lake City, Utah.

DIVIDEND NOTICE.

UNITED STATES RUBBER COMPANY

1790 Broadway,
New York, April 1st, 1915.

The Board of Directors of the United States Rubber Company has this day declared from its net profits a quarterly dividend of Two Per Cent. (2%) on the First Preferred Stock, a quarterly dividend of One and One-half Per Cent. (1½%) on the Second Preferred Stock, and a quarterly dividend of One and One-Half Per Cent. (1½%) on the Common Stock of the Company to Stockholders of record at 3 P. M. on Thursday, April 15th, 1915, payable without closing of the Transfer Books, April 30th, 1915.

W. G. PARSONS, Treasurer.

Statement for April, 1915, of the ownership, management, etc., of the "Railway World," published monthly at Philadelphia, Pa., required by the Act of August 24, 1913.

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Publisher,	"Railway World,"	Philadelphia, Pa.

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(Signed) E. G. WARD,
Editor.

Sworn to and subscribed before me this 22nd day of April, 1915.

(Signed) WALTER M. BARBER,
Notary Public.

(My commission expires February 5, 1919.)

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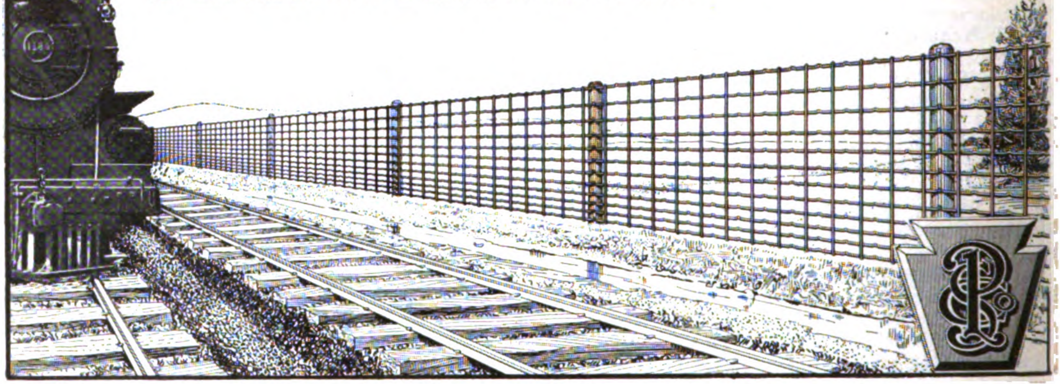

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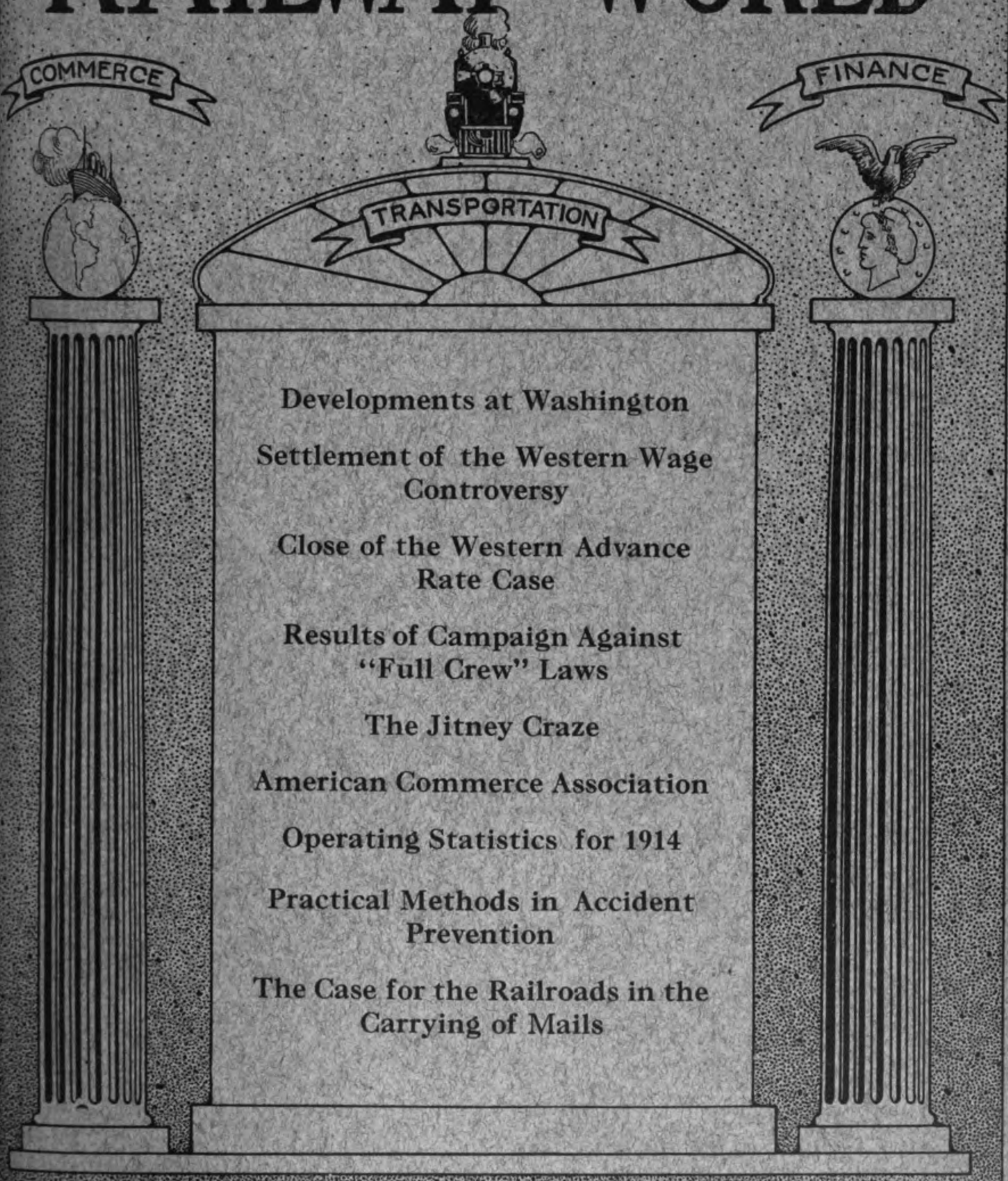

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Railway World

VOLUME LIX ESTABLISHED 1856 NUMBER 5

A MONTHLY JOURNAL (successor to Railway World, a weekly publication) designed to present an accurate and comprehensive review of current events pertaining to Transportation, Commerce and Finance and to afford a medium for the development of a clearer understanding of the mutuality of interest which exists between those who employ and those who operate the railways.

Publication Office: 612 Chestnut Street, Philadelphia, Pa.

Terms: $3.00 per Annum in Advance
Foreign Subscriptions: $3.50 per Annum in Advance
Single Copies: 25 Cents
Advertising Rates furnished upon application

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DIVIDEND NOTICES.

OFFICE OF THE UNITED GAS IMPROVEMENT CO.
N. W. corner Broad and Arch Streets.
Philadelphia, March 10, 1915.

The Directors have this day declared a quarterly dividend of two per cent. ($1.00 per share), payable April 15, 1915, to stockholders of record at the close of business March 31, 1915. Checks will be mailed.

LEWIS LILLIE, Treasurer.

Philadelphia Electric Company, 419 Market Street, Camden, N. J., May 13. 1915. The Board of Directors have this day declared a quarterly dividend of one and three-quarters (1¾) per cent. (being 39.375 cents a share) upon the paid in capital of the Company, payable June 15, 1915, to stockholders of record May 22, 1915.

H. C. LUCAS, Treasurer.

AMERICAN CAR AND FOUNDRY COMPANY

STOCKHOLDERS' MEETING

The stockholders of the American Car and Foundry Company are hereby notified that the regular Annual Meeting of the stockholders of said Company will be held at its offices No. 243 Washington Street, Jersey City, New Jersey, June 24, 1915, at 12 o'clock noon, for the purpose of electing a Board of Directors and transacting such other business as may be properly brought before the meeting.

WM. M. HAGER, Secretary.

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Railway World

VOL. LIX. MAY, 1915 No. 5

Important Developments in the Transportation Field

DEVELOPMENTS AT WASHINGTON

Several decisions were rendered by the Interstate Commerce Commission during May which were of momentous importance to the carriers and which have not helped to increase the feeling of renewed confidence, which was given birth with the Commission's decision in the Eastern five per cent increase rate case, that the future would hold a large measure of relief for the carriers, in lessening the restrictive regulation which has so sadly hampered their development within the past few years.

Perhaps the greatest single blow which the Eastern railroads have ever received from the hands of the Commission, rests in the decision made public on May 15th, and which refuses the application of these roads to retain their ownership in the boat lines which operate on the Great Lakes between Buffalo and other points on these inland waterways. The Commission rules that these roads must dispose of their lake lines by December 1, 1915. This applies to ownership of the Erie and Western Transportation Company, known as the Anchor Line, by the Pennsylvania and the Northern Central railroads; the ownership of the Lehigh Valley Transportation Company (lake line only), by the Lehigh Valley Railroad; the ownership of the Mutual Transit Company by the New York Central Railroad; the ownership of the Western Transit Company by the New York Central Railroad; the ownership of the Rutland Transit Company by the Rutland Railroad; the ownership of the Erie Railroad Lake Line by the Erie Railroad; the ownership of the Mutual Transit Company by the Erie Railroad; the ownership of the Canada Atlantic Transit Company only by the Grand Trunk Railway of Canada; the ownership of the Mutual Transit Company by the Lehigh Valley Railroad; the ownership of the Rutland Transit Company by the New York Central Railroad, and the ownership of the Mutual Transit Company by the Delaware, Lackawanna and Western Railroad.

The Commission held that "none of the several existing specified services by water is being operated in the interest of the public or is of advantage to the convenience or commerce of the people within the meaning of the act, and that an extension of the respective interests of the petitioners therein will prevent, exclude and reduce competition on the Great Lakes."

The Commission pointed out in its decision that the physical fact of ports of call being served in common by the boats and the paralleling rails of the owning railroad establishes a case of competition existing between the owning railroad and its boat line. The case, it said, is the same where the railroad entity which owns the boat line also owns, through stock control, another railroad entity or is an integral part of a system of railroad whose paralleling rails serve ports of call in common with the boats. To quote from the decision:

> The interest existing between the several portions of the New York Central System and the several boat lines in which it is a stockholder is the kind of interest which the act was intended to reach. The same is true of the Pennsylvania System, the Erie, and the Grand Trunk. Each of these four systems has such an interest as the act defines in a boat line or lines which does or may compete with rails forming the respective systems The case of the Rutland Railroad Company and its interest in the Rutland Transit Company presents another phase of a like situation, since it is allied with the New York Central System.

The Commission called attention to the fact that the Lehigh Valley and the Lackawanna roads present a different position, inasmuch as the boat lines owned or in which they have an interest, with the exception of the interchange port of Buffalo, serve no points in common with the rails of any part of the owning railroad system. "Each of these roads, however," said the Commission, "is a party to through all-rail routes and joint rates to all ports served by its boats with respect to westbound and eastbound traffic. All of the principal carriers in Central Freight Association territory concur in these rates, including the lines west of Buffalo, which form parts of systems controlled by the petitioning trunk line carriers. * * These carriers, in common with all other trunk line roads, make through passenger fares from points on their lines to all Central Freight Association points, including ports served by their boats, in connection with all Central Freight Association carriers. * * * The effect of such alliances on their boat lines indicates that these railroads are parties to arrangements which make them competitors of their boat lines."

It is the opinion of railway officials, familiar with the situation, that the Commission's decision will not only prove a disadvantage to the operating companies but will likewise result in a severe loss to the shippers over the lake routes. Whether the Commission believes it or not, the boat lines on the lakes have never paid the carriers, and it appears inevitable, therefore, that the result of the ruling will be seriously felt by the shippers. Package freight has been the principal traffic on these water lines and it is claimed, with much reason, that it will not be advantageous for independent concerns to attempt their operation or to be willing to invest capital at this time for their acquisition. It would, therefore, not be surprising if a large number of the boats were withdrawn from the Lakes and placed in coastwise trade. In fact, a movement in this direction has already begun as indicated by the fact that the Rutland Transit Company sold two of its boats last February to the New England Coal and Coke Company for use in the coast trade.

The boat lines affected represent a big investment of railroad capital. The combined ships of the six companies number between fifty and sixty.

The Mutual Transit Company, with a capital of $60,000 stock and $3,139,000 bonded debt, is owned in equal parts by the New York Central, the Erie, the Lehigh Valley, and the Delaware, Lackawanna and Western. The company has twelve steamers.

The Western Transit Company, with $1,000,000 stock, all owned by the New York Central, has bonds of $1,500,000 outstanding and owns ten steel vessels.

The Erie and Western Transportation Company, owning the Anchor Line of ships, is owned by the Pennsylvania, holding $2,299,650 of its stock, and by the Northern Central, owning $500,000 of the stock.

The Erie Railroad owns eight steamers directly and calls the company the Erie Lake Lines.

The Lehigh Valley Transportation Company is owned by the Lehigh Valley Railroad through the holding of all of its $1,510,000 stock.

The Rutland Transit Company, with a capital stock of $1,000,000, is owned by the Rutland Railroad, which is controlled jointly by the New York Central and the New Haven. The line has been operating six boats.

The decision is certainly not a happy one and it is hard to understand how any real good can come from it. As the *New York Journal of Commerce* says editorially:

> In tone it is reminiscent of the early days of the anti-railroad and anti-trust period when there was general and more or less severe denunciation of combinations without very close inquiry into their results. At various points in the text of the finding there seems to be evidence of animosity, or criticism that appears out of place in a judicial or quasi-judicial document; and which tends more to the nature of political debate than of calm analysis. The discussion of what constitutes the public "welfare" in regard to the carriage of freight is narrow but it is also exceedingly vague. It fails to convince the reader. Unless it be true that the mere raising of rates is against the public welfare or that the rates—lake and rail—are to-day too high, there may be a good deal of reasonable doubt whether this decision and the definitions it contains would stand any close or severe analysis. Recent developments and conditions have raised in many public-spirited and dispassionate minds the belief that transportation rates are not, under all the present circumstances, above what they should be—perhaps are not high enough.
>
> The Commission's decision does not touch bottom in this matter. It makes clear either that the section of the Panama Canal act which it applies is unwise, or unfair, as many at the time of its adoption believed, or else that its terms are not sufficiently well worked out to render their administration by the Commission easily feasible. Certainly the Commission has not approached the subject in a very conciliatory or encouraging spirit.

The *Wall Street Journal* also wants to know what will be accomplished if the order of the Commission is finally enforced. In discussing this question editorially, it says:

> Assuming that the next Congress leaves this section of the Panama Canal act unaltered, what will happen when the railroads seek to comply with the Commission's order? The lake fleets in question—which are not carriers of grain, coal, or ore, but only of package freight—will be sold either to a number of new owners or to one powerful steamship corporation. If the former, the expense of divided operation and their competition with one another will in all likelihood prevent them from doing business at a profit at any less than the prevailing rates, which have not as a rule yielded substantial returns to the railroad boat owners.
>
> If a single company takes over the new boats, the result will be simply that one monopoly will have been substituted for another and the new will be of such scope and power as to prevent the entrance of new and competing capital into the business just as effectually as railroad domination has in the past. And one owner or several will alike be exposed to the competition of the all-rail lines.

In another decision which is of even greater importance to the carriers of the entire country, the Commission has decided that the Cummins law, passed on the last day of the last Congress and prohibiting limited liability of common carriers, does not entitle the railroads to increase their freight charges ten per cent automatically. But the Commission itself indicates, in the following language, that the decision is not final:

> All of the questions herein discussed are, of course, subject to judicial interpretation and the views indicated herein might be somewhat changed in the light of more complete information, supported by competent evidence.

It will be recognized that the effect of the decision, thus modified, is to deny to the railroads any increases in rates because of increased liability, until the Commission has been shown that the increase is just and reasonable in view of the greater liability, or the courts have been convinced that the law automatically puts the increases into effect. It would appear, therefore, that the decision puts the burden of proof on the carriers, if any increased rates are to follow the enactment of the law.

This is further indicated by that part of the Commission's decision intimating that rates on specific commodities might rightly be raised because of the increased liability. To quote from the decision:

> If, in a proper manner and a proper proceeding, it shall be made to appear that, with regard to any commodity or commodities, the existing rates do not afford the carriers proper compensation for the services they perform and the risk which is imposed upon them, it could hardly be denied that the rates on such commodities might properly be increased in a sufficient amount to properly compensate the carriers for their added risk and liability. Where rates are lawfully based upon declared values, the difference in rates should be no more than fairly and reasonably represents the added insurance. It does not appear that this amendment to the act affords justification for any increase in rates on commodities in general. As has been said, the carrier may not lawfully impose unreasonables rates upon one commodity in order to compensate it for risk or liabilities incurred in connection with the transportation of another commodity and it is not to be forgotten that the liabilities here considered are only those for loss, damage or injury to the property caused by a carrier or its agents or employes; in other words, the loss, damage or injury resulting from the neglects or omissions of a carrier or its agents.

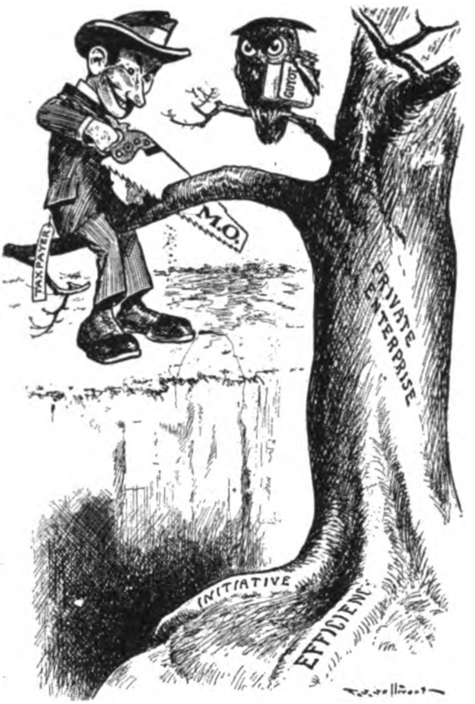
Difficulties in the way of the carriers in showing the propriety of increases of rates for greater liability are also hinted at by the Commission, as follows:

> The Commission has made no investigation upon which a judgment as to the cost of and proper compensation for additional risk could be based. The Commission has no right to assume that it would be five per cent of the rates upon 30 per cent of the carriers' traffic (referring here to a notice of Southern roads of intention to increase certain rates) or that it would be any given per cent upon all the traffic. Obviously there can be no propriety in attaching to one commodity unreasonable rates for the purpose of compensating a carrier for a risk attaching to it in the transportation of another commodity and it is admitted that the carriers can not make any accurate statement in advance as to the added cost, if any, of the increased liability.

To the layman it might appear that the Commission handed the railroads a hard jolt when it pointed out that in 1913, following the decision by the Supreme Court of the United States in the case of Adams Express Company v. Croninger, 226 U. S. 491, the railroads began the application of a general policy to enforce the limited liability provisions of the bill of lading and no reduction in rates was made. It would seem, however, that if reductions should have been made, the Commission would have ordered such reductions. Having pronounced the rates reasonable, at least by non-action, the Commission cannot now practically reverse itself and admit that the railroads have been charging too much while the limited liability policy has been in full force.

After reviewing the legislation and the contention of the railroads and shippers, the decision continues:

> The more important points which seem to be surrounded with the most doubt and upon which opinions so far expressed most sharply conflict, are:
>
> 1. If no changes are made in the existing shipping contracts and rate schedules, will the higher rates provided therein automtically become lawfully applicable upon the date upon which the amendment takes effect?
>
> As we have seen, the Carmack amendment, adopted in 1906, provided that no contract, receipt, rule or regulation should exempt the carrier from the liability thereby imposed. As has been said, no effort was made to change rates because of that amendment to the act. The classification or rate schedules provide that unless the terms of certain bills of lading are accepted, higher rates will apply. The terms of the bill of lading could be modified or changed to any extent without automatically changing any rate. Prior to 1913 many of the limitations contained in bills of lading or other shipping contracts were treated as if they did not exist and it was never suggested that the validity or invalidity of any such provision affected the rate.



The New Saw

It is contrary to all canons of construction to hold that an act of Congress produces a result not intended by Congress unless the express language of the act compels such a construction. There is nothing in the express terms of this act or in the history of this legislation that shows any intent or purpose on the part of Congress to affect in any degree the existing rates charged by carriers for transporting property. The legislation is aimed at specific contracts and declares them to be unlawful. The lawful rates on file at this time, therefore, are the rates providing for the limited liability. The Cummins amendment, by making contracts limiting liability for loss caused by the carriers unlawful, does not destroy these rates, but they remain in effect and are lawfully applicable for the ten per cent increased rates are merely additional and cannot stand in and of themselves.

Applying correct rules of interpretation, the Cummins amendment does not automatically bring into effect the increased rates named in the classifications and tariff publications as applicable to shipments which are not made subject to the terms of the uniform or carrier's bill of lading.

2. May the carriers lawfully provide in their tariffs and rate schedules that their liability shall be for the full value of the property at the time and place of shipment?

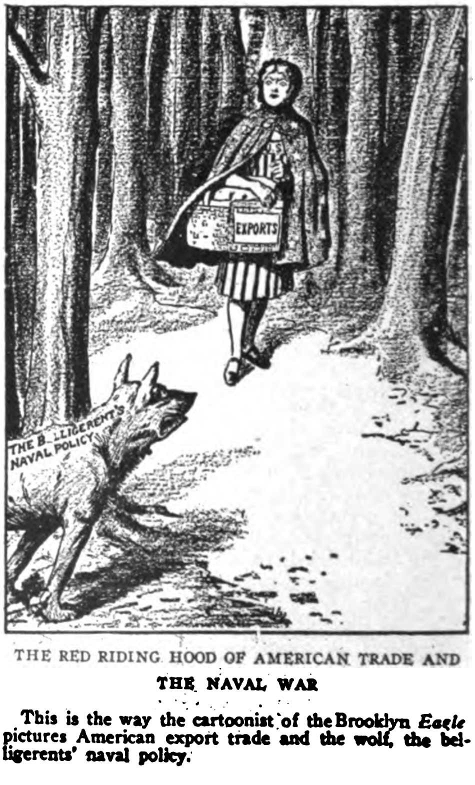
It is argued that such a provision would be neither a limitation of the amount of recovery nor a representation or agreement as to value within the meaning of the new law. It is urged that this rule would relieve the question of the amount of liability from uncertainty, would afford a reasonable and uniform method of determining the measure of recovery, save endless litigation with its attendant labor and expense and avoid unjust discriminations.

The Cummins amendment clearly places upon the carriers liability for the full actual loss, damage or injury to the property transported which is caused by them and it makes unlawful any limitation of that liability or of the amount of recovery thereunder, in any receipt, bill of lading, contract, rule, regulation or tariff filed with this Commission, without respect to the manner or form in which such limitation is sought to be made. The loss or damage must, apparently, be either as of the time and place of shipment, time and place of loss or damage or time and place of destination. Where rates are lawfully dependent upon declared values, the property and the rates are classified according to the character of the property, of which the value of the property may constitute an element, and such classification is necessarily as of the time and place of shipment. It is therefore believed that the liability of the carrier may be limited to the full value of the property so classified and established as of the time and place of shipment.

3. Does the amendment to the act apply to export and import shipments to and from foreign countries not adjacent to the United States?

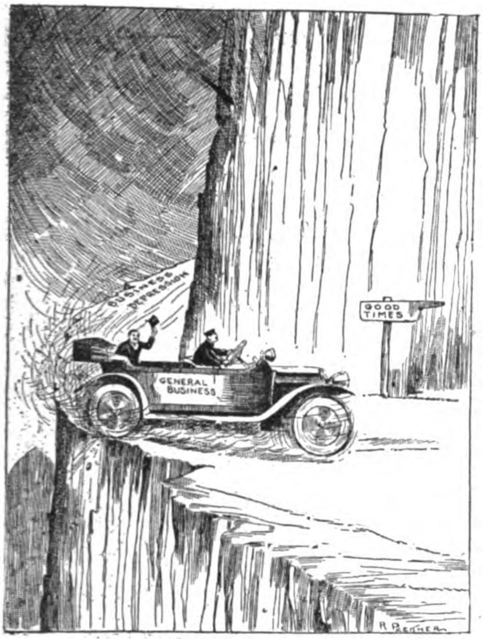
This must be answered in the negative, in view of the fact that, while specifically stating that its terms shall apply to property received for transportation from certain points to certain other points, it makes no reference to shipments from a point in the United States to a point in a non-adjacent foreign country, or from a non-adjacent foreign country to a point in the United States.

4. In the proviso "that if the goods are hidden from view by wrapping, boxing or other means and the carrier is not notified as to the character of the goods," what is the proper inter-



THE RED RIDING HOOD OF AMERICAN TRADE AND THE NAVAL WAR

This is the way the cartoonist of the Brooklyn *Eagle* pictures American export trade and the wolf, the belligerents' naval policy.



WATCH YOUR STEP!

—from *Financial America.*

pretation to be placed upon the words "and the carrier is not notified as to the character of the goods"?

Some argue that the word "character" means nothing more than a statement of the ordinary name by which the commodity is known. On the other hand, it is urged that knowledge as to what the commodity is is necessary in order to apply to it any transportation rate, and that therefore the word "character" properly means more than the mere name of the commodity. It has been suggested that the real and proper meaning would be indicated by recasting the language as follows:

"*Provided, however,* That if a commodity in the course of transportation is hidden from view by wrapping, boxing or other means, so that the carrier can not know its character, that is to say, its grade, quality, and condition, it may, with the approval of the Commission, publish and maintain rates based on value and require the shipper to state in writing the value of any shipment made, and beyond the value so stated the carrier shall not be liable."

It has also been suggested that in view of the fact that the articles dealt with in this proviso are to be distinguished on the basis of value, the value becomes a peculiar quality of the property and the word "character" should be construed as including value, and that when the shipper notifies the carrier of the character of the goods the notice is incomplete unless the value is stated as a necessary element in pointing out the character of the goods.

Another suggestion is that when common experience or knowledge does not clearly establish the nature of the goods, or the view is hidden by boxing, wrapping, or other means, and the carrier is not notified as to the true character of the goods, it may exercise the right to require the shipper to state in writing the value of the property.

The right of the carrier to initiate its rates and to consider value of the property tendered for transportation as an element in determining the classification thereof or the rate applicable thereto has not been denied by the act or withdrawn by this amendment. The right in certain instances to make varying rates upon a given article or commodity dependent upon its true value being recognized, and it being impossible for the carrier's agent to know the true value of the shipment unless it is declared by the shipper, and in view of the fact that the ordinary name of the commodity is essential to the application of any transportation rate whatsoever, it seems that the word "character' 'as used in this proviso must include the true and actual value as stated by the shipper.

The word "character" as here used clearly relates primarily to value, or to those qualities affecting value, and when the entire proviso is considered the meaning seems to be that if the qualities affecting the value of the goods are hidden from the carrier's view, or are not known to the carrier, the proviso applies. It is a well-settled rule of statutory construction that the word "and" may be read as "or" in deference to the meaning of the context.

If the word "and" in the proviso is read as "or," the meaning is reasonably clear, whereas if the letter of the statute is adhered to the meaning is doubtful and difficult to determine. In those instances in which the carrier desires to limit its liability to the value of the property as specifically stated in writing by the shipper, the rate must be based upon the declared value and be so published; but the Commission apparently must determine in advance of such publication that the commodity is one the value of which cannot be known to the carrier from ordinary sources or reasonable inspection, and to which rates based on declared value may be applied in connection with which the carrier's liability is limited to the value so declared.

In determining that question, the inquiry is whether or not the commodity is one the value of which is peculiarly within the knowledge of the shipper. If it has a definite market value or its value depends upon facts of which the carrier has equal knowledge with the shipper, the "character" of the shipment is known to the carrier and the proviso does not apply. The Congress did not affirmatively recognize any rates based upon declared value other than those authorized by this proviso. This, of course, does not mean that commodities may not be reasonably classified according to value and be subject to different rates applicable to different grades of the same commodity, which is a different matter from limiting the liability to the declared value.

When the goods are not hidden from view and the carrier is advised as to their character, all contracts or agreements purporting to limit the liability of the carrier for loss or damage caused by it are made void. A carrier, after the Cummins amendment goes into effect, may not contract to limit its liability for loss or damage caused by it to the property. There is, however, no inhibition as to the succeeding carrier to which the property may be delivered. The amendment has expressly reapplied the limitation of the prior act with respect to loss or damage caused by the carriers chargeable therewith. It follows, therefore, that the interpretation applied to the act before it was amended is equally applicable to the amendment in so far as the latter affects the right of a carrier to establish rates conditional upon the shipper's assumption of the entire risk of loss attributable to causes beyond the carrier's control. From this, it follows that under the amendment a contract or a tariff may lawfully limit to a reasonable maximum the liability of a carrier for losses which it does not cause. It follows further that the rates provided by such tariff may be proportionate to the risk assumed.

This provision of the statute as to goods concealed from view and of the character of which the carrier is not advised clearly prescribes the right of carriers under the direction or approval of the Commission to provide for a graduation of rates in accordance with the declared value of the property transported. The liability provided by the rates so established by the Commission is applicable no less to instances of loss or damage chargeable to the negligence of the carrier than to those occasioned by causes beyond the carrier's control. But the carriers may not contract to limit their liability for loss, damage, or injury caused by them to property the character of which is manifested by the shipment itself or otherwise disclosed.

In this connection it has been suggested that the carrier might provide that in the event the shipper refused to declare the value the higher rates would apply. This suggestion can not be approved. If the rate is lawfully conditioned upon the value as declared by the shipper, it is as much the shipper's duty to declare the true value of the shipment as it is his duty to declare the name of the commodity tendered for shipment as to which there are no different rates.

It is important to keep in mind that the carriers are not prohibited from making different rates dependent upon the value of different grades of a given commodity; that, except as covered by the Cummins amendment, including approval of the rates by the Commission, the carrier is subject to all the liabilities imposed by that amendment; and that if, in any instance, the shipper declares the value to be less than the true value in order to get a lower rate than that to which he would otherwise be entitled, he violates, and is subject to the penalty prescribed in, section 10 of the act. The carrier would also be subject to the same penalty in such a case if, having knowledge that the value represented is not the true value, it nevertheless accepts the shipper's representation as to value for the purpose of applying the rate.

5. Do the terms of the Cummins amendment apply to the transportation of baggage?

This must apparently be answered in the affirmative. Transportation of baggage is a part of the contract for transportation of the passenger. The carriers have always limited their liability for loss of or damage to baggage. The baggage check is the carrier's receipt for the baggage. The conditions attached to the carrier's liability are stated in the fare schedules and on passage tickets of contract form. In National Baggage Committee v. Atchison, Topeka and Santa Fe Railway Company, 32 I. C. C., 152, the Commission considered the carriers' rules relative to charges and liabilities in the transportation of baggage and prescribed certain reasonable regulations, including reasonable insurance charges upon baggage declared to be of greater value than the maximum limit provided in the schedules and contract for carriage. All ordinary personal or sample baggage is hidden from view by boxing, wrapping, or other means, and the amended law seems clearly to recognize the carrier's right to fix conditions and terms applicable to the transportation of baggage dependent upon the value as declared by the person offering the baggage for transportation.

The necessity for revision of the bills of lading, live stock contracts, and other similar contracts of carriage, as well as of certain parts of the carriers' classifications and rate schedules, is manifest. Bills of lading and shipping contracts can and ought to be at once amended by eliminating obviously unlawful and invalid provisions. Such action will obviate for the immediate future numerous controversies that otherwise would probably arise. Proper analysis should be made of the classifications and tariffs to bring them into harmony with the amended law.

Such changes in classifications and rate schedules can not be made upon statutory notice and become effective contemporaneously with the new law. Permission is therefore hereby given to carriers to make effective on June 2, 1915, upon not less than three days' notice to the public and to the Commission, given in the manner prescribed in the act and in the Commission's regulations, amendments to the classifications and rate schedules which eliminate provisions or rules that are in conflict with the terms of the new law, provided no such amendment has the effect of increasing any rate or charge for services.

SETTLEMENT OF THE WESTERN WAGE CONTROVERSY

The settlement of the Western wage controversy, as was to be expected, was a compromise, although the men received little of the actual increases in wages contended for. A computation made by the labor unions places the total aggregate increase at approximately $800,000 a year, although these figures are for wages alone and do not include the value of compensatory rules or overtime allowances granted. The railroads contended, throughout the case, that to grant every demand made by the men, would cost the ninety-eight carriers involved in the neighborhood of $40,000,000 a year. According to the Brotherhood's figures, the advances to the engineers will total about $311,000, while those to the firemen will amount to $509,000.

The arbitration board making the award, consisted of six men, W. L. Park and H. E. Byram, representing the railroads; F. A. Burgess and Timothy Shea, representing the Brotherhoods or men, and Charles Nagel and Judge F. C. Pritchard, representing the public, and, therefore, being the neutral members of the board.

The award was endorsed by the railroad members and by the neutrals, but was opposed by the members representing the

Brotherhoods. In brief, the award does not greatly increase wages, but does materially shorten the working day and greatly improve working conditions. The wage increases allowed were as follows:

> Overtime increases in passenger service to 75 cents per hour for engineers and 45 cents for firemen, an increase of from 10 to 15 per cent.
>
> Engineers and firemen on local or way freights to be paid a 10 per cent increase over through freight rates.
>
> Enginemen on pusher, helper, mine runs, work trains, belt lines and all other unclassified service to be paid on the basis of through freight wages, which means an increase of 10 to 15 per cent.
>
> Enginemen in the switch engine service to receive from 15 to 25 cents a day increases.
>
> An advance on through freight service of an average of 40 cents per hundred miles.

The hour and service allowances will permit:

> Passenger service employes' day to be computed upon basis of 100 miles or less, five hours or less, all mileage in excess of 100 miles to be paid for pro rata.
>
> One hundred miles or less, ten hours or less, to constitute other days, except in switching service.
>
> Employes to be paid for "terminal delays," time beginning when they are called to leave roundhouse. Final terminal delay in passenger service to begin at the time they arrive at passenger depot and end when they are relieved.
>
> When held at other than "home terminal" for more than twenty-two hours, employes to get ten hours' pay for each twenty-four hours held.
>
> Engineers and firemen to have the right to the position of motorman and helper wherever electric, multiple unit, gasoline or other service is installed.
>
> Switching service day to be ten hours, with time and one half time for overtime, employes to be thirty minutes undisturbed for meals at the end of six consecutive hours.
>
> Surprise tests by turning switch lights and placing red lights, or flags, unaccompanied by torpedoes beside track, or wiring down automatic signals to proceed position, to be eliminated, and all efficiency tests to be made so as not to be hazardous to employes.
>
> Extra firemen to be employed on coal-burning locomotives weighing 185,000 pounds or more on drivers, when used in freight service.
>
> Firemen to be relieved of cleaning locomotives, throwing switches, filling water cars or flagging through blocks.
>
> The award does not allow the increase of pay to engineers and firemen demanded based upon classification of engines. This was the big increase asked.

A dissenting opinion, which was filed on behalf of the Brotherhood of Enginemen, branded the arbitration as a failure and the Newlands law, under which it was arranged, as an inadequate device for the settlement of industrial disputes. Used to victories of a more substantial character, the labor leaders were particularly bitter in their criticism of the results, and it was freely predicted that the award only temporarily disposed of the questions involved. In fact the attitude of the men was such, that it appears the only safe way in which future labor disputes of this character can be amicably settled, will be through the establishment of a compulsory arbitration law, compelling both the men and the carriers to present their differences before a board established under the law for such purpose.

Judge Peter C. Pritchard, of Richmond, Va., chairman of the Board, said that, while in his opinion the men in certain branches of the service were entitled to greater advances than were made, he had to make concessions in order that an award might be made, and he found much of a hopeful nature in the award. Charles Nagel, of St. Louis, ex-Secretary of Commerce and Labor, who with Judge Pritchard, represented the Board of Mediation and Conciliation on the Arbitration Board, was the only member who issued no statement. He is deeply offended by the recent attack made on him as an arbitrator by officers of the brotherhoods, who pointed out that he was a trustee of the estate of the late Adolphus Busch and that railroad securities form a part of the assets of the estate. It is hardly necessary to add that this unfair attack had no weight with those who are familiar with the personal character of Mr. Nagel.

In fact, the feeling against Mr. Nagel ran so high that a few days after the award a conference was held by the one hundred general chairmen of the unions of the railroads involved and a formal demand was made for an investigation by Congress of Mr. Nagel's appointment to the Board. It also was reported that the Brotherhood of Locomotive Engineers and the Brotherhood of Locomotive Firemen and Enginemen would urge other labor bodies not to submit wage or working condition matters to Federal arbitration until the Nagel matter was adjusted.

The formal demand was made in the form of a letter to Warren S. Stone, grand chief of the engineers, and W. S. Carter, president of the firemen's brotherhood, copies of which were sent to Washington. The letter read:

> After a careful consideration of all facts in connection with the recent arbitration and carefully reading all records in connection therewith, it is the unanimous desire of the chairmen representing all engineers and firemen and hostlers employed on lines west of Chicago that a congressional investigation of the entire matter is not only desirable, but, in our judgment, necessary, if controversies of this character are to be peaceably adjusted, as we are firmly of the opinion the makers of the law contemplated the neutral members should not be interested in either side, but should be neutral in the true sense of the word.
>
> And we submit that Mr. Nagel was not a neutral, inasmuch as it was clearly established that the said Charles Nagel, appointed by the Federal Board of Mediation and Conciliation as a neutral arbitrator in the recent wage dispute between the engineers and firemen and certain Western railroads, is co-executor and co-trustee of the estate of the late Adolphus Busch, which estate has large holdings of railroad securities; and further:
>
> The said Charles Nagel is a director in the Union Trust Company of St. Louis, Mo., and in the Northwestern Mutual Life Insurance Company of Milwaukee, Wis., both of which corporations are even larger holders of railroad securities than the Busch estate.
>
> In view of these facts this joint committee emphatically and unanimously indorse the action of the chief executives of these organizations in their protest against the continuation of the said Charles Nagel as a neutral arbitrator and fully approve of their efforts to have the said Charles Nagel removed as such arbitrator. And we recommend:
>
> That the chief executives of these organizations endeavor to obtain a congressional investigation as to the reason why a man so intimately connected with and so directly interested in the economic operation of railroads should have been selected as a neutral arbitrator in a dispute between the railroads and their employes.
>
> We believe this action necessary and imperative if conflicts are to be averted through peaceful measures, and in this connection we believe we are advancing the interests of the entire American people as well as the employes we represent.

It would not be surprising if several important developments of National interest emerge from this controversy between the Western railroads and their engineers and firemen. One is a Congressional investigation of the Arbitration Board, aimed at former Secretary of Commerce Nagel and the other, to which this investigation will of course contribute, is likely to be a move for the repeal of the Newlands act and for the passage of legislation in its place which will create some kind of a permanent and expert Federal wage commission, whose duty it will be to handle just such cases as these.

Men on both sides of the case are in more or less agreement that, in spite of recent improvements in the law, railroad wage arbitration has not yet reached a satisfactory form. The railroad brotherhoods have often expressed their distrust of arbitration, and no less a spokesman for the railroads than Professor F. H. Dixon, statistician of the Bureau of Railroad Economics of Washington, has publicly stated his fundamental objection to both mediation and arbitration as now conducted:

"We have not," declared Professor Dixon in a recent speech, "obtained either from the mediation method or that of arbitration results of enduring value. Under the policy of mediation we have developed experts in the interpretation of railway wage schedules, but these experts have been debarred by the very nature of their office from considering issues on their merits. Under arbitration, the forms of the judicial hearings have been conscientiously observed, attempts have been made to weigh evidence and to reach just conclusions; but the men upon whom the burden of decision has fallen have not been experts. One of the important consequences of this is that the public, whose agents the independent arbitrators are supposed to be, has been at a disadvantage, and has not been adequately represented."

Most of the awards in recent arbitration cases have been compromises which have pleased neither side, and which have failed to settle the question in dispute, except temporarily. No sooner is one arbitration over than preparations are begun for another. It is not making a wild guess to predict that the railroad brotherhoods who are not satisfied with last week's decision, will be found by May 10, 1916, the date upon which their present agreement expires, again demanding more wages. Into the present situation there has, of course, entered an unusual factor, namely, the plea of the railroads themselves, before the Interstate Commerce Commission, to be allowed to increase their freight rates. Should the Commission grant this increase, which is considered highly probable, and should prosperity come back with a bounce, the men will have a very favorable case to present before the bar of public opinion when they point to growing railroad revenues, and ask that their compensation also be increased. Unless there shall be in existence, when this time comes, some adequate machinery for the adjustment of this industrial dispute history will unquestionably repeat itself—unless the men decide to strike.

Before a year from now arrives, however, there is good reason to believe that forces, already set in motion, will have made notable advances toward providing something like a permanent and expert board for the handling of railroad wage disputes. The matter is obviously a Federal matter. This fact was recognized by the Congress which passed the Erdman act, and no one has seriously questioned its national status since. The regulation of railroad rates has, for many years, been in the hands of the permanent and non-partisan Interstate Commerce Commission; and so, arguing by analogy, there is a strong case to be made for the giving over of the making and changing of railroad rates of pay into similar non-partisan and technical hands.

CLOSE OF THE WESTERN ADVANCE RATE CASE

Western railroads and the shippers completed their testimony during the third week in May, before the Interstate Commerce Commission at Chicago, thus bringing the hearings in the Western rate advance case to a close.

The last few days were largely given over to the testimony of shippers interested in the various rates which the carriers desired to increase, and while there was developed strong opposition with reference to certain of these increases, the testimony was rather in the nature of a presentation of the hardships such advances would cause the shippers, rather than a convincing denial of the necessity for the Western roads to be permitted to adopt such measures as would increase their revenues. It is the general feeling that the railroads have made out a strong case, and that the Commission will decide that they are entitled to some measure of relief.

The case opened in Chicago on March 4th and hearings have been held daily ever since, presided over by Commissioner W. M. Daniels and Edgar Watkins, examining attorney, of the Interstate Commerce Commission. The printed record in the case has run to over 15,000 pages, with the total number of spoken words up to the end of the testimony aggregating about 3,000,000. In all 140 witnesses were heard, 55 appearing for the carriers and 85 for the protestants, while the number of exhibits presented on both sides reached 1,060.

Forty-one railroad systems, operating west and southwest of Chicago, comprising 64 railroads, with a total mileage of 98,000 miles, are interested in the increase in rates asked for, which it is estimated would add about $10,000,000 to the revenues of these carriers annually, or about 1½ per cent of their aggregate freight revenues last year.

The railroads have based their petition upon the ground that while labor costs, prices of material and other operating expenses, taxes and cost of capital have been steadily advancing, the level of their rates has been declining, with the result that although $740,000,000 has been expended in improvements and betterments in the last seven years and many miles of track has been added, the net revenue, after payment of operating expenses, has declined.

In 1914, it was pointed out, Western railways had paid 78.81 cents out of every dollar of revenue to operate and pay taxes, against 68.14 cents in 1901, while their average receipts per ton mile fell from 8.64 mills in 1901 to 8.27 mills in 1914 and the average receipts for hauling one passenger one mile fell from 2.16 to 2.05 cents.

Because of the declining margin between expenses and revenues, the roads contend that their credit is declining and that a serious difficulty confronts them in financing future extensions and betterments, and refinancing maturing obligations, which in the next seven years will amount to over $423,000,000 for 29 of the roads alone.

Following the advice of the Interstate Commerce Commission in the Eastern case, the method selected for securing additional revenue was to pick out those commodities which are claimed to be paying less than their proper proportion and make advances upon them. These include grain and grain products, hay, broom corn, packing house products and fresh meat, live stock, bituminous coal, fruits and vegetables and cotton piece goods.

Shippers opposing the advance contended that the present revenues of the carriers are adequate, and that in spite of the increase in costs of operation, no advance in rates is necessary.

The railroads' case has been presented by a committee of railroad attorneys and traffic men, headed by C. C. Wright, general solicitor of the Chicago and North Western Railway, while the shippers' case has been presented by a committee headed by Clifford Thorne, chairman, Iowa Railroad Commission, representing the railroad commissions of sixteen Western States, the various large packing houses, organizations of grain shippers, coal dealers and other shippers interested in the affected commodities.

Briefs are to be filed in the case with the Commission by June 10th, and arguments will commence June 15th before the Commission in Washington.

THE RAILWAY MAIL PAY PROBLEM

In another section of this issue will be found an article by Ralph Peters, chairman of the Committee on Railway Mail Pay, which fully discusses the whole question and gives the reasons for the railroads' attitude in their effort to procure adequate compensation for carrying the mails.

At a meeting of railroad executives, representing 90 per cent of the entire mileage of the country, held in New York at the Grand Central Terminal on May 20th, the entire question was thoroughly discussed, and the position of the Committee on Railway Mail Pay, in advocating that the system of paying the railroads according to the weight of mail transported and opposing the so-called "Space Plan" of payment, advocated by the Post Office Department, was unanimously sustained.

The reforms of the present law, urged by the Committee on Railway Mail Pay, were also unanimously approved, as follows:

1. That the mails be weighed, and the pay readjusted, at least once a year on every railway mail route, instead of once in four years, as at present.
2. That the railroads be paid for, or relieved from, the duty of carrying the mails between railroad stations and post offices.
3. That the railroads be paid for apartment post office cars—for which the present law allows no pay—on a pro rata basis with the compensation for full railway post office cars.

Mr. Howard Elliott, president of the New York, New Haven and Hartford Railroad Company, acted as chairman of the conference.

After a full discussion, the following resolutions were unanimously adopted:

Resolved, That the position of the Committee on Railway Mail Pay has the approval of the representatives of the railroads present at this meeting, and that the railways of the United States continue to give their united support to the Committee in its efforts to secure to the railways adequate compensation for transporting the mails.

Resolved, further, That we believe the so-called space basis as proposed in the last Congress is wrong, and susceptible in practice of grave injustice to the railways in denying payment for services rendered.

Resolved, further, That we endorse the views of the Committee on the superiority of the existing weight basis, amended by annual weighing, payment for apartment cars and payment for or release from side or terminal messenger service.

Resolved, further, That the Committee on Railway Mail Pay is urged to continue its work on this basis, and to ask Congress to enact a law that will give the Interstate Commerce Commission the same jurisdiction over the mail traffic that it now has over all other traffic of the railroads.

RESULTS OF CAMPAIGN AGAINST "FULL CREW" LAWS

While the Eastern carriers have been partially successful in their efforts to procure the abolishment of the full crew laws in the States of New York, New Jersey and Pennsylvania, the results have not been as satisfactory as the justness of the cause would warrant.

In New York, the State Senate during the latter part of April, passed the Spring bill which was designed to amend the full crew law, by placing the regulation of all crews under the Public Service Commission, by a vote of 30 to 18. When this bill reached the House for final passage, however, it was defeated by the close vote of 68 to 65, and efforts to revive it have apparently proved futile.

In Pennsylvania, however, the railroads have received a fuller measure of success and in that State both the Senate and House have passed a bill to repeal the full crew law and place the matter of the proper manning of trains in the hands of the State Railroad Commission. The Senate's vote to eliminate the present act from the statute books was 36 to 13.

At the present writing the bill has not received the signature of Governor Brumbaugh, but on May 19th, Mr. W. W. Atterbury, vice-president in charge of operation of the Pennsylvania Railroad, appeared before the Governor at Harrisburg and speaking for the railroads of the State, urged the Governor to sign the bill. Vice-President Atterbury's statement was an unusually clear exposition of the carriers' attitude on this question, and is herewith reproduced in full:

We are before you to-day, Governor, representing the railroads operating in this great Commonwealth, asking your favorable consideration of a simple and efficient substitute of an uneconomic measure.

The existing law, which establishes certain regulations and imposes them in an arbitrary way, can have no place on the statutes except as a police measure framed in the interest of safety to the public and to the employes.

The proposed substitute takes nothing from the public nor from the employes of the protection which the present law aims to give; on the contrary, it extends its scope and wipes out its limitations.

It gives to the Public Service Commission the authority to so man the trains as to insure safe operation.

The public and the employes can fairly ask for no more; the railroads desire no less.

The situation which confronts you seems most opportune.

The people of the State await with interest, but with no suspense, the announcement of your appointments to the body which, under the substitute measure, will have full and complete authority. Their appointment is entirely in your hands and it is your responsibility to select such men as you may feel assured can be relied upon to exercise the new and greater power which it is proposed shall be conferred upon them, and to give to the public safe and efficient service, fair treatment to the employes and justice to the railroads.

Under the bill now before you the right of the State to extend the police power is clearly recognized, and that power is placed with the Commission in order that it may be effectively exercised in a manner possible only when established facts are submitted to intelligent judgment.

Let me assure you with all possible earnestness that the railroads have no wish or purpose to under-man their trains. Business sense, no less than a full regard for the safety of the public and the welfare of the employes, demands that every train shall be so manned as to insure safe and efficient operation. Only so can accidents, with the attendant loss of life and injury, and destruction of property, be reduced to the minimum. Only so can the maximum service be obtained from the great capital investments represented in existing railroad facilities.

I assert that law or no law the railroads to-day work for safe and efficient operation. In support of this assertion I direct attention to the fact that of 5,613 passenger and freight trains being operated in Pennsylvania by all railroads on February 12th, last, 567 or more than 10 per cent, were manned with crews larger than required under the present law. Nevertheless, the public has the right to receive this assurance from a body of its own creation.

The railroads, in advocating this substitute measure, recognize this right and the bill now awaiting your signature places that power in the hands of the Public Service Commission.

All interests—the public, the trainmen, the railroads—are fully protected. The way will be open to all to secure what is just.

The railroads do not desire to lay off loyal and efficient men; nor is it the intention to do so.

Speaking for the railroads, I take this opportunity to assure you, Governor, to assure our employes and to assure the public that the deliberate purpose of the railroads is to retain the "excess" trainmen, not in their present occupations, but in useful service.

This statement is not now made simply to influence your decision. It is but a reiteration of that given to the public February 25th:

"The public should understand and employes should be assured that in this campaign for repeal of laws which make arbitrary employment and do violence to economic laws, the railroads do not war upon their men. They hold no hard feelings against even the superfluous trainmen whose wages make an unjust, because unnecessary, charge upon transportation service.

"On the contrary, and this statement can be taken as public notice of the fact, every one of the twenty-one railroads now working for repeal of the 'excess man crew' laws, would prefer to keep employed, but in useful service, the men for whom these laws make jobs. Further, with the laws repealed, every loyal and efficient man so laid off because unnecessary where he now is, will be considered as on the 'extra list,' and be given employment at the first opportunity."

The railroads owe a duty to the public and to their security holders to conduct their operations economically and to employ no superfluous men, and, therefore, should not keep on trains more men than are necessary to safety and efficiency. Useful employment when possible will be found for such men as may not desire to remain on the "extra" list where ordinarily they would be assured of preference for service.

If business conditions continue to improve—and there are growing indications that such will be the case—more trains will have to be operated. This will require additional crews and in turn will promote from the "extra" list to regular assignment.

As an evidence of enlarging traffic I may state that on January 4th there were 46,065 idle good order freight cars on the Pennsylvania Railroad System, while May 14th saw only 31,020 cars not in use.

It is obvious that the railroads distribute their earnings to many industries and in various ways stimulate others to increased activity.

Enable the railroads to apply their revenues to necessary and productive purposes and at once the industrial and business life of the entire State responds. The railroads greatly desire to do so, recognizing fully that their prosperity is interdependent with that of the territory and people they serve.

The bill before you, Governor, will aid in bringing about prosperity. It will make for work, not add to unemployment.

It will work in the real interest of railroad employes as a whole and will be a real benefit to the wage-earners of the State, in whose welfare you have properly taken so sincere an interest.

It will work to promote the general interest of all of our people, no matter where or how employed.

We are looking ahead to greater and better things for Pennsylvania and for our country. These can be reached only through harmony of interest and action.

PENNSYLVANIA RAILROAD'S POLICY TOWARDS ITS EMPLOYES

The Federal Industrial Relations Commission at Washington has recently been holding a number of sessions, with the object of disclosing the attitude of leading corporations towards their employes. .

During these hearings the Pennsylvania Railroad was severely attacked by certain labor leaders, on account of its alleged attitude towards labor unions; and, in order to make its position clear, this company submitted to the Commission the following statement, which constitutes a summary of its policies towards its employes, and the necessity for this policy, in order to conserve the interest of all concerned:

The management of the Pennsylvania Railroad believes that the company's greatest asset is the loyalty and efficiency of its men. Its labor policies may be generally described, therefore, as an effort to protect that asset.

The Pennsylvania Railroad early realized the importance of training its own officers. This, of course, carried with it the training of its own men. To make the service attractive it was essential that employment, as far as possible, be permanent. The result is that at present the average term of service on the Pennsylvania Railroad is exceptionally high.

The majority of those who enter the service continue in the service until they die or are pensioned. The consequence has been the establishment of sympathy, affection and understanding between the officers and the men, which has done much to bring about the success of the company.

The company believes that railroad employes should be paid liberal wages, and it believes there should be every feasible safeguard to provide for the personal safety of both employes and patrons.

The management frankly recognizes the propriety of the men organizing, for the purpose of bettering their condition, subject only to such restriction as may protect the elemental essential of safe and continuous operation. It sometimes happens that the management itself would be glad to do more in the direction of additional compensation of the men if economic conditions made it possible.

It should be understood that the Pennsylvania Railroad has always paid moderate dividends, believing that the safety and permanence of a moderate dividend afforded the greatest insurance for the continuing credit of the company. Only by maintaining a credit of the highest character could the company expect to obtain on reasonable terms the capital necessary to provide the public service demanded by the growing needs of the communities along its lines.

The stock of this company has always been well distributed, and the officers have been trustees rather than controlling owners. No one financial interest has ever undertaken to dominate the company's policies.

In dealing with organizations among its employes, the company has felt that the employes themselves were the best judges of the forms of organization into which they desired to go. Therefore, there has been no interference in the employes' liberty of choice in this matter.

The company has always recognized the right of any man to labor upon whatever terms he and his employer may agree, whether he belongs to a labor organization or not. Employes have always been given full opportunity to redress their grievances whether associated with labor organizations or not.

The foregoing statement, however, must be qualified in this respect:

1. The company owes a supreme duty to its patrons and employes to take all possible measures to insure *safety of operation*. Such safety cannot be secured without the most careful adherence to orders. The management has, therefore, felt that it should resist firmly all activities of employes' organizations which might tend in the least to undermine discipline.

2. The management is also responsible to the public for maintaining *continuity of operation*. This has made necessary a policy of opposition to such labor organizations as might interrupt that continuity, because of disputes with which neither this company nor its employes had any direct relation.

The company is opposed, therefore, to employes

THE INDUSTRIAL RELATIONS COMMISSION BEFORE WHOM WITNESSES HAVE RECENTLY BEEN TESTIFYING AS TO CONDITIONS OF LABOR ON THE PENNSYLVANIA RAILROAD. READING FROM LEFT TO RIGHT THE MEMBERS OF THE COMMISSION ARE: A. B. GARRETSON, MRS. J. BORDON HARRIMAN, HARRIS WEINSTOCK, FRANK P. WALSH, CHAIRMAN; JOHN B. LENNON, JAMES O'CONNELL AND RICHARD H. AISHTON.

affiliating themselves with an organization which might call a sympathetic strike: If there is to be any strike on this railroad, the management believes that it should be the result of the choice of its own employes, and because of some difference between this company and its own men, and for no other reason.

The company believes that men should be employed without regard to the labor organization of which they are members, and that every man should be free to join an organization or to remain entirely independent. The company believes, therefore, that all its operation should constitute an "open shop."

In normal times the Pennsylvania System has 250,000 employes. The company has always paid the highest prevailing rate of wages paid to railroad employes in the territory in which it operates. But more than that: The policy of the Pennsylvania Railroad has been to insure that all its relations with its men should be characterized by fairness and friendliness.

The management of the Pennsylvania Railroad believes that the best test of the sincerity of its interests in the welfare of its men is the fact that so large a percentage of its employes have made the service of this company their life work.

The rules governing the "organization" of the Pennsylvania Railroad Company include everyone in the service, from Board of Directors to the laboring man of the track. Now, the fundamental principle of that organization is that responsibility is properly placed, from the Board of Directors and the president down to the lowest man, and regulations or rules have gradually been adopted and recorded which describe the various duties.

The company's officers now believe that the experience embodied in its present form of organization is the surest guarantee of efficient and economical performance of the company's public service.

PUBLIC EXPRESSIONS BY PROMINENT OFFICIALS

Prominent men, both in in the railway and industrial fields, have discussed publicly within the past few weeks, many of the problems which are vitally affecting our industrial and commercial progress.

President William Sproul, of the Southern Pacific Company, has made public the contents of a letter written to Hon. Frank P. Walsh, chairman of the United States Commission on Industrial Relations, by Julius Kruttschnitt, chairman of the Executive Committee of the company, in which Mr. Kruttschnitt explains and amplifies his answer to the question as to what could be done to settle labor disputes and maintain industrial peace in the future.

In this letter, written under date of April 14th, Mr. Kruttschnitt suggests that the usefulness of the Newlands act—providing mediation, arbiaration and conciliation in controversies between certain employers and employes—could be greatly increased if it were made to apply to all railway employes engaged in interstate commerce, instead of employes engaged in train service or operation only; and, furthermore, that the Board of Mediation and Conciliation should be co-ordinated with or subordinated to the Interstate Commerce Commission, so that the same authority responsible for increasing expenses of the carriers should at the same time incur a corresponding responsibility for providing revenue to meet the expenditures. He cites the Canadian Industrial Disputes Investigation act, which has worked well because it makes an appeal to a mediation board compulsory and enjoins strikes and walkouts until the board can investigate the facts.

Mr. Kruttschnitt, in his letter, says:

One of the questions asked me when I appeared before your honorable Commission in Chicago, on Saturday, April 10th, was what could be done to settle labor disputes and maintain industrial peace in the future. I should like, with your permission, to explain my answer in some detail.

The act of Congress, approved June 15, 1913, known as the Newlands act, providing for mediation, arbitration, and conciliation in controversies between certain employers and employes, is a great improvement on the Erdman act, which it superseded, but it relates to employes engaged in train service or train operation only, of common carriers engaged in interstate commerce. Its usefulness would be greatly increased if it were made to apply to all railway employes engaged in the interstate business of the employer, including those engaged in keeping in repair cars, locomotives, appliances, machinery, track, roadbed, and other instrumentalities of interstate commerce. The Board of Mediation and Conciliation, appointed by the President, under the act, has proven useful in maintaining industrial peace, but as it frequently results, as a consequence of invoking the services of this Board, that railway expenses are increased, it is very important to the carriers that the Board should be closely co-ordinated with, or better still, subordinated to the Interstate Commerce Commission, so that the same authority responsible for increasing expenses of the carriers should at the same time incur a corresponding responsibility for providing revenue to meet the expenditures. The reasonableness of such a provision is apparent when the complete control of revenues, and almost equally complete control of expenditures by Government at the present time, is considered.

The Newlands act provides that when a controversy arises either party may apply to the Board of Mediation and Conciliation for its adjustment, and the Board may offer its services to the parties in controversy where interruption to public service is imminent. There is no obligation, however, other than a sense of obligation to the public, on either employer or employe to submit differences to mediation. Instances have occurred where mediation and arbitration have been stubbornly refused, with utter disregard of the public's interest and rights, and the act offers no remedy. This defect could apparently be remedied, as is done in the Canadian industrial disputes investigation act of 1907, which makes a combination, lockout, or strike illegal until the questions at issue shall have been thoroughly investigated and made public; and there should be a provision that where the Board *offers* its services for investigation, mediation and conciliation, it shall be obligatory on and not optional to the parties, to submit their differences so that the public may judge the dispute intelligently.

The desirable feature in the Canadian act is that it compels investigation and publicity, and peace pending investigation; and paves the way, as the Newlands act does, to arbitration, which, however, is optional with the parties to the dispute. The Canadian Department of Labor, in its Bulletin of April, 1914, reviews the proceedings under the industrial disputes investigation act of 1907 for a period of seven years, during which it has been in effect. One hundred and sixty-two applications had been received, as a result of which 141 boards of conciliation and investigation were established. In 19 cases the matters in dispute were adjusted by mutual agreement while steps were pending for the establishment of boards. Two applications were under consideration at the end of the year. There were altogether only 18 cases in seven years in which strikes were not either averted or ended through the instrumentality of the act. Out of this total one occurred in the operation of railways, five in railway offices, shops, and yards, and one in the operation of a street railway. In a report dated December 9, 1912, on the industrial disputes investigation act of Canada, 1907, made by Sir George Askwith, chief industrial commissioner to the British Board of Trade, and presented to both Houses of Parliament of Great Britain, the purposes of the act were defined as follows:

"The simple purpose of the act is to insure the recognition of the interests of the public as a third party in trade disputes, and the insistence that that third party, through the Government, shall have a voice in regard to a dispute affecting their interests, and, according to the act, before a stoppage of work takes place. In practice, the recognition extends to cases arising before or after a stoppage of work. While this principle of the recognition of the public interest in trade disputes is emphasized in the act, the actual interferences with the parties in the settlement of their differences is sought to be reduced to a minimum by the act being confined:

"1. To industries whose uninterrupted continuance is of high importance to the well-being of the nation (mining, railways, shipping, and other public utilities); and

"2. To a brief suspension of the right to stop, as distinct from a complete prohibition of stoppage."

And further on occur the following views, which are as applicable to our country as they are to Great Britain:

"' * * * and I think that it might be feasible in the United Kingdom, with advantage to both employers and employed, to give opportunity for such investigation and recommendation as would bring into light the real causes of difficulties, and create in the public mind and in the minds of employers and employed the opinion that when opportunity exists by law such opportunity should be taken advantage of, and that strikes and lock-outs ought not to be commenced, and certainly not supported by "sympathetic" strikes, while such investigation and recommendation are pending. Investigation and recommendation would not be necessary in all cases, and could well be confined, at any rate in the first instance, to cases in which the public were likely to be seriously affected.

"'From the point of view of the public the advantage of such a course is obvious. The public have no use for strikes or lock-outs, and such a course might reasonably be expected to lessen their number. While the public might often have much difficulty in bringing opinion to bear in favor of acceptance or rejection of technical decisions, which in many trades it would be impossible for persons who had not examined the question to understand, their support to the principle that the ordeal of battle should give place to reasonable judgment would probably be emphatic and frequently effective.

"'From the point of view of the employers such a course need not interfere with the administrative details of business or discipline, but should give better opportunity for regular and consecutive business by reducing the number of strikes, by bringing strikes to an earlier conclusion, and the powerful effect which I am convinced would result in the direction of rendering unnecessary and ineffective the progress of those sympathetic strikes by which employers having no quarrel with their own workmen are now so frequently disturbed.'"

Reports of the satisfactory operation of the Canadian act, and a conviction that like benefits would accrue through the adoption of some of its provisions in the United States, induced me to send an assistant to Canada in September, 1914, to learn at first hands from the managers of Canadian railways, and from the Canadian Department of Labor, their experiences with the operation of the act. The opinion alike of railway executives, and of the Commissioner of Labor, was that their disputes and investigation act was satisfactory and very successful in preventing lock-outs and strikes. In discussing the results of our observations with the executive heads of some of our important railway systems the opinion was expressed, without exception, that the provisions of the Canadian act were most helpful in the interests of employers, employes, and the general public, the three parties to every industrial disturbance.

On April 27th, Mr. George D. Ogden, general freight agent of the Pennsylvania Railroad, delivered an address before the Chamber of Commerce at Titusville, Pa. He said in part:

Hand in hand, transportation and commercial endeavor must move forward together. If the one halts, the other looks around for the cause, so sympathetic is the relationship. That relationship has developed ties in recent years never again to be broken, may it be hoped.

It seems safe to predict that the law makers, for some years to come, will desist from proposing legislation that will savor of being inimical to commerce. Some candidates have recently had the clearness of vision to see the approaching change in public sentiment, from indifference toward railroads to loyalty and support, announcing from the stump that those who expected them to work against corporations should not vote for them, as they could not support such a view. It is apparent that business men are determined to take a deeper interest in public affairs than in years past.

It should be borne in mind that there must be profits if there is to be employment; and the best security for steady employment is the increased profits. Legislation and regulation for the public interest should continue, but regulation—legal or otherwise—for selfish motives must cease if the American people are to enjoy permanent prosperity.

The primary purpose of organizations is to concentrate forces of men having a fixed object in view, and, when accomplished, the combined influence greatly exceeds the sum total of the individual units comprising the organization. See to it, then, that the object or purpose to be attained is of the right sort and quite worth while.

Take the Pennsylvania Railroad for example: Its influence is generally conceded to be far reaching, not only in the United States but also in Europe, due to the fact that its officers and board of directors have had a fixed purpose in view, namely, developing the property to a high degree of efficiency in its service to the public.

It has yet much to do to meet the requirements of a thrifty nation, rich in natural resources and highly skilled in manufacturing pursuits. Let us hope nothing may happen to thwart its purpose.

American railroads comprise almost half the mileage of the entire world. The railroads in the United States approximate 250,000 miles or about three eighths of the total railroad mileage of the world.

The cost of our railroads average $62,657 per mile, as against $328,415 per mile in England $144,683 per mile in France; and $113,855 per mile in Germany.

The service is admittedly superior to that of any foreign country and the rates, both freight and passenger, very much lower.

As a whole the railroads of the United States, with very few exceptions, can stand upon the record of the average cost per mile, and "with that in hand" reasonably ask the confidence and support of our proud American citizenship.

E. H. Gary, chairman of the United States Steel Corporation, recently contributed a noteworthy article to the *Market World and Chronicle* on "Co-operation in American Business." The article is well worth the careful reading and consideration of every business man in the country as it is by one of the country's greatest industrial experts, and deals with one of the most important phases of American business progress. The following paragraphs are taken from this article:

If industrial development has a place in the progress of civilization it should be organized upon a basis of elimination of preventable human waste. It should not be carried out along the very principle, or lack of principle, which, as between the nations of Europe, has been so powerful a contributing cause to the present war. It should not be carried out along lines of unrestrained and cutthroat competition, which is itself hardly different, in many of its cardinal phases, from actual war.

More than this, as we look back over what has been happening in the business world in this country since 1907, and particularly as we reflect upon the co-operative spirit displayed during the past seven or eight months of strain and anxiety, we become more convinced that very great progress has been made among our business men towards the comprehension and in some degree the realization of the idea of co-operation which was pointed to in 1908 as one of the most hopeful signs of recovery from the depression of the panic of 1907. While it is true that this has been very little perceived or appreciated in political circles and that the tone and temper of legislation have shown almost accentuated acrimony in respect of tendencies whose necessity has been becoming apparent to far-sighted business men, there is abundant evidence among the latter class that their minds are turning more and more to the ideal of industry and commerce conducted along co-operative rather than wastefully competitive lines. The desire for organized efficiency has always been particularly strong in Americans, and possibly no other people has ever carried organization and efficiency in an individualistic sense farther than have we. Now it is rapidly dawning upon the clearest thinking of our citizens that there is still a higher kind of efficiency than that of competitive individualism, namely, the efficiency of properly devised and safe-guarded co-operation.

This raises the question why there has not been a more rapid acceptance by the American public generally of the principle of the higher efficiency made possible by such co-operation and co-ordination in industry and commerce as have been producing the remarkable results referred to in Germany. Why is it that in a people like ours, in which efficiency has always been a passion and organization has achieved some of its greatest triumphs in certain limited fields, there has not been a fuller application of the principle that general organization on co-operative, instead of brutally competitive, lines, yields the highest results in efficiency, both for the several branches of industry and commerce and for the people as a nation?

I think there are two reasons which may be given. One has to do with the difference in the conditions which have characterized the economic growth of the United States and of Germany. In the latter country the natural resources at hand have been strictly limited. The population of nearly 70,000,000 souls is crowded into an area of 208,794 square miles, on a basis of nearly 317 persons to the square mile. In the United States, the wealth of national resources has been as proverbial as has been the lavish extravagance with which we have consumed them. Our vast area of over 3,000,000 square miles liberally supports our population, on a basis of less than twenty-eight persons to the square mile. Organization and co-operation in the German sense have not been forced upon us by our environment; and we are only gradually awakening to the fact that our resources are not limitless, and that the waste of natural and human material is radically wrong, no matter how vast our resources.

The other obstacle to the growth of co-operation in the United States has been, perhaps, an inherent repugnance on the part of most of us towards any relinquishment of individual liberty. Few Americans would combat this tendency. It is fundamental to the safety of the great experiment in free government which we are trying in this country.

Just here, however, comes in the lack of clear thinking which is the chief obstacle that remains to be overcome before we have the fuller application of the principles of co-operation in the United States. The proper application of those principles does not restrict, but rather increases the liberty of the individual. The security to the industrial worker, through co-operation, in respect to greater safety, shorter hours, more continuous employment, and a share in the increased profits which these conditions bring about, should certainly not be considered other than an increase of personal liberty. In industry, as with the individual, liberty is not so much a matter of freedom from restraint as it is the acquirement in increasing measure of the rewards of labor, both of the mind and of the hands, through intelligent and mutually helpful meeting and overcoming of the obstacles which must be met each day.

But a sharp distinction must be drawn. The application of efficiency by organized and co-operating units of the people who are doing the work is totally different from the imposition of organization by the government. In this vital matter it seems possible that the temper of the American people differs from the temper of the German people. And it may be proper to ask the question as to whether the proper development of the co-operative principle in the United States has not been hampered by the fear which various experiments in paternalism have instilled into a large body of our citizens, that a National Government by Commission was being unreasonably imposed upon them. We need publicity and we need wise government supervision for the prevention of abuses; but, subject to these checks, the co-operation of individual initiative is alone consistent with the political and social ideas of this country.

In the era of clearer thinking in the United States, into which we are about to pass, and whose coming has been greatly hastened by the war in Europe, it seems probable that a careful analysis of these obstacles will be made, and that, with a full understanding of the facts, there will come correct judgments on the part of the public. Then there should follow not only co-operation within the various industries, but among all industries,—in fact, among all the great constructive forces which form our national strength. The object of this paper, however, is not to furnish that analysis, but to state the problem.

The guiding principle of the day should not be: "Let us be prosperous"—but rather the broader one, "Let there be light." The rule- of-thumb days are passing. It is pre-eminently necessary for the people to be rid of panaceas and propagandists, of political theorists and demagogues, and to return once more to the simple facts as they are developed by experience. Let us emphasize these basic truths, and the judgment of the average thinking man may be relied upon to evolve the principles of action which are essential to the prosperity and happiness, if not to the very existence, of the nation.

CANADIAN OPPORTUNITIES

The railways of Canada have many advantages over those in the United States. Not only does the Government look upon these agencies of commerce as highly beneficial, but it is constantly lending practical assistance, stimulating to the entire industry. In this country the days of land grants and financial assistance belong to a dim past, but across the border, the Canadian roads are still receiving a co-operation from the Government, which permits them to blaze the trail in vast regions, rich in natural resources, but which heretofore have been unable to reach either domestic markets, or the broader markets of the world.

While the railroads of the United States have largely outgrown the necessity for direct governmental aid in the development and extension of their lines, they stand vitally in need of a more co-operative and liberal spirit on the part of public regulators, and the manifestation of a broader sympathy in their efforts to maintain and develop a transportation system sufficient to meet the demands of a progressive and expanding commerce.

In Canada, the railroads are permitted to engage, in a large measure, in many activities which, though not strictly belonging to the transportation business, assist enormously in the development of certain sections of the country. It has been the established policy in Canada, for a number of years, for the trunk lines to own and operate hotels at certain points. This has not only stimulated travel but has played no small part in the development and growth of certain localities. As a recent example of this, the Grand Trunk Pacific has completed and opened a summer hotel at Minaki, Ont., 114 miles east of Winnipeg. This hotel has accommodations for over 400 guests, and will be first class in every particular. It will undoubtedly result, not only in increasing the interest in the town itself, but will encourage a familiarity with adjacent territory, all of which will prove beneficial to the region involved.

The United States is not so old or so well developed that similar opportunities and necessities do not exist within its borders. The attitude of regulative bodies, however, has largely discouraged the railways from making any attempt to engage in activities outside of those of a common carrier. Ramifying as they do throughout the entire nation, the railways could yield a much greater influence in the development of various localities, were it not for the fact that the restrictive influences of regulative laws have largely discouraged efforts, which in the past, have played no small part in the nation's industrial and commercial development.

Within restricted lines, the carriers still carry on a vigorous population and industrial propaganda, but a little more encouragement from regulative authorities would increase these activities ten fold, and it would be well for some of our commissioners both National and State, to consider more thoughtfully the attitude of the Canadian Government towards its railways, and draw therefrom a profitable and useful lesson.

It is, after all, only an imaginary line which divides the Dominion of Canada from the United States. In vast regions of the Western section of our country, conditions are not dissimilar from those across the border. Yet on the one hand we have regulative authorities working shoulder to shoulder with the transportation interests, and on the other hand, largely through political tendencies, an influence which, within the past few years, has tended to discourage the building of new lines or the proper development of vast regions which are, as yet, only indifferently supplied with transportation facilities.

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THE JITNEY CRAZE

The recent growth in the employment of automobiles in the larger communities for the carriage of passengers at a nominal rate, has proved more than a ten-day wonder. At the present time, in practically all important cities in the United States, there has been established an automobile service by which the general public can be carried between various points within a community at the five-cent rate employed by the trolley lines.

So extensive has become the use of this new means for local transportation, that it has excited a country-wide interest and has led to considerable discussion as to its profitableness. A report recently issued by a special transportation committee appointed by the Oakland (Cal.) Chamber of Commerce to investigate the origin and reason for this movement, how it operates, what is its present effect and what is its probable future, is of particular interest in view of its rapid spread. This committee, which consisted of some of the leading professional and business men of the city of Oakland, made a complete survey of the community's interest in this new transportation scheme. The committee also extended its inquiries and investigations throughout all the principal cities in the United States, and has based its conclusions on the information thus obtained.

The investigation was undertaken because it was believed that the dominant party at interest in any change of transportation units is the community, and that is covered by the opening paragraphs in which the committee says: "In all of the controversies and hearings over the jitney bus problem thus far, in the press and before legislative bodies the positions taken and the views expressed have very naturally been those of the interested parties from their immediate viewpoint—on the part of the street railways to protect their income and investment; on the part of the jitney owners to establish a business, and on the part of the traveling public to consult only its own temporary fancy, prejudices or convenience."

In another paragraph the committee asks: "Have we now reached the point where the electric trolley car is to be regarded as obsolete and be superseded by the independently owned and operated small transportation unit traveling on 'rubber and air' and propelled by its own power plant? Is this a scientific advance in urban transportation, and an economic necessity demanded by the people? Will it result in still further increasing traffic range and the economic residence limit from the business centers, or if not extending these limits will it add to the speed, comfort or safety of the service within the present limits?"

The committee calls attention to the fact that in looking over the history of urban transportation we find the horse car giving way to the cable car, and the cable car (except under very special conditions) to the electric trolley car. There was an economic justification for each change which made it necessary and unavoidable. The wiping out of investments in the horse car, cable car, and earlier electric car lines and equipment, and replacement with the efficient and expensive modern equipment, had its justification in the accompanying social, physical and financial development and improvement of the people and communities affected. It was reflected in an increase in property values which greatly overshadowed the immediate investment in the transportation system destroyed.

Will the jitney do this?

It is quite conclusive that if the motor bus comes to stay, it will not be in the shape of the present jitney, and if the motor bus is to be the transportation unit of the future, it will supersede the electric car because it is economically right, and in doing so, it would justify the replacement of the present investments by enhancing the property values of the community.

This is the key note from the standpoint of the report. Will the jitney relieve congestion in apartment or tenement sections in the way that every city in America is striving to solve that problem, or will it only aggravate and increase the present difficulties? If it does not, what will become of the values beyond the 2½-mile limit which the committee finds to be the ultimate range of service of the jitneys? If the jitney weakens the present transportation systems which draw the support for unprofitable lines serving the outlying districts from the section where traffic is densest, what does it mean to the property owner and the home owner in the suburbs of Oakland, and the American city?

The committee believes that the jitney bus in a large measure is due to poor business, hard times, and the impossibility of men obtaining work of any kind. "Many of these men already owned small autos, or had saved enough money to buy an automobile, and in this way they went into the jitney bus business. * * * * For the present they are doing something for themselves and their families, their time is occupied and the nickels they take in enable them to eat at the expense of their autobus. In other words, the jitney driver is living upon his capital, or the capital of some one else, because the income is not sufficient to provide for his living and the necessary operating expenses, plus fixed charges and depreciation."

The Cost of Operation.—Extended investigations of the committee showed them that the average jitney travels 137 miles per day with a car-mile income of 5½ cents. Considering depreciation and cost of operation and allowing $3.00 to the driver, it was found that even the smallest jitney could not run for less than 7 cents per mile. This emphasizes the fact that most drivers are living at the expense of their auto bus and on their capital rather than on their income.

Effect upon Securities.—Investigation of certain standard traction bonds in California with a par value of $107,422,000 showed a shrinkage from December, 1914, to March, 1915, of $8,887,000, or about 8¼ per cent.

The ultimate effect of this is appreciated by anyone who considers that over $60,000,000 worth of California electric railway bonds are held by savings banks and local investors in California, or in other words, by home people. $430,767,703 in outstanding stocks and bonds was the total for thirty street railroads on June 30, 1913.

Effect upon the State and Municipalities. The State receives 5¼ per cent of the gross income of street railways, and the total tax paid on gross income amounts to about 12 per cent. This means a total loss to the public on principal lines of the State $300,000 per annum, aside from the other form of taxation placed by the public upon street railways in the building and maintenance of that portion of the street occupied by the roadbed.

Effect upon Streets.—It was found that in London where the motor bus has attained its greatest prominence, the fact was brought out in a hearing before Parliament that whereas the cost of maintaining a certain road surface prior to the advent of the motor bus was 6.483 d. per square yard, it was increased to 13.403 d. after one year of bus traffic, or slightly over 100 per cent. In this case it was the public—or in other words, the Middlesex County Council—appearing in its own behalf to demand relief from a new burden of taxes imposed by the bus traffic.

Congestion in Streets.—During the rush hour from 5 to 6 P. M., the average number of passengers transported in the 5-cent limit from the business center of Oakland (a length of three blocks on Broadway) is 113,500. Approximately thirteen jitneys would be required to give the same carrying capacity as one street car. In Oakland, to handle the above traffic requires 234 cars with a headway of 15 seconds. To move the same traffic with jitneys at 13 to 1 would require 3,000 cars.

No further argument need be advanced as to the necessity for fewer and larger transportation units in the congested districts during rush hours or normal hours of large traffic.

The logical conclusion from the committee's report is that if the public continues to support the jitney, and thereby weakens the street railways and ultimately put them out of business, they must expect a zone system of fares, because the small jitney cannot operate over a much longer route than three miles at a profit. The American cities have religiously fought the zone system on account of the destruction of property values and the congestion of population.

THE ADVANTAGE OF GOOD ROADS

Criticism is heard, from time to time, of the enormous waste represented in the almost universal employment of the automobile, and there is more than a little truth in the statement that the motor car of to-day represents the most expensive method of getting from place to place, in spite of the present, if only temporary claims, of the jitney bus.

However, there is a credit as well as a debit side of the ledger when the influence of the automobile is fairly considered. It has not only created an enormous industry, supplying thousands of employes with remunerative employment, but the opportunity it offers the masses in the way of health, recreation, and education, is well worth its price; and its ability to eliminate distances, enables thousands of citizens to become familiar with their country, to an extent impossible under any other method of transportation.

One of the greatest and most beneficial influences, however, has been upon the highways of the country, and there is scarcely a section which has not felt its pressure for better and more numerous roads. Good road movements have succeeded wonderfully within recent years, in no small measure due to the automobile; and whatever may be the extravagance connected with its operation, this has been more than swallowed up, from a national standpoint, by the increase in farm values, for which road improvements have been largely responsible.

How great have been these road improvements, in certain sections of the country, is strikingly set forth in a report recently issued by Frank Andrews, chief of the Division of Crop Reports of the United States Agricultural Department. Mr. Andrews asserts that since 1906, the average day's haul of cotton from the farm to the shipping station has been increased from about 1,700 pounds to approximately 3,000 pounds.

This is assuredly a remarkable increase. Commenting upon its significance, President Harrison, of the Southern Railway Company, recently said:

> While the shortening of the average haul, due to railroad construction and the use of heavier draft animals, has probably been helpful, there can be no doubt that the principal factor in this large saving in the cost of marketing the cotton crop, is the direct result of the progress that has been made in improving the country highways of the South. It is a practical demonstration of the economic advantage of improving roads radiating from market towns and shipping stations so as to give the benefits of good roads to the largest practicable number of farmers in the community. That there is still room for further improvement in many localities is shown by the fact that the average wagon load of cotton varies in different parts of the cotton belt from two and one half bales to eight bales.

A NOVEL PLAN FOR STIMULATING TRAVEL

In New York, recently, there has been organized a company known as "Travelstamp, Incorporated," for the purpose of introducing in Eastern territory a form of profit-sharing coupon which, it is reported, has already been used with some success in the West. This company, instead of issuing coupons good for merchandise, issues certificates exchangeable for railroad mileage, and this enables the thrifty housewife to finance the travel end of her family's summer vacation, by collecting and saving the coupons she obtains from her grocer, her butcher, her dry goods store and other tradesmen with whom she deals.

It is reported that the new company has the backing of several prominent railroad and financial men, and Henry I. Miller, for many years connected with the Pennsylvania Railroad and more recently president of the New Orleans and Great Northern, is president of the corporation. Newman Erb, whose many railroad activities have made him a prominent figure in the transportation world, is understood to head the executive committee of the corporation, and will devote attention to the initial shaping of its policies. The company has already arranged with a number of manufacturers to distribute its travelstamps, and will also put them out through the retail channels now used as a distributor of merchandise coupons.

The certificates, which will be equivalent to a purchase of 25 cents, will be good for one mile over any of the standard railroads and will be exchangeable at any time. The coupons will be issued in minor denominations, following the line of the merchandise coupons which are issued in five-cent units, 25 cents in coupons being equivalent to one certificate.

RECRUITING EMPLOYES FROM LOCAL TERRITORY

Many have been the methods developed within the past few years, to create and sustain the friendly interest of the people in the territory through which railroads operate. It remained for the Frisco Railroad, however, to originate a plan of an unusually novel character, but which, if successfully carried out, is likely to solidify such sentiment, as probably no other movement could. In other words, it is proposed by officials of this road to make every town along the line a recruiting station for the Frisco.

Nothing could be more desirable than that everyone in the Frisco service should have been reared in its territory, and, with this object in view every possible effort, consistent with fair play to those who are or have been in service, will be made to give positions to applicants who live along the line.

At the same time, the officials realize that the Frisco has neither the time nor the money to act as a training school for raw recruits, neither has it opportunity to discover the natural bent of applicants for positions, but to further its plan, it is proposed to have the superintendents and those under them deliver short talks upon the different branches of railroad service at the schools at points on their divisions or whenever opportunity affords.

These talks will be upon all branches of railroad service and will be given as often as desired. It is believed that, with this information, the schoolboy will have an opportunity, not only to learn something about railroad service, but to discover his natural bent.

It may be that his railroad knowledge is confined to mechanics or operation, whereas, if he had a glimpse of traffic, he would discover that it appealed to him as of greater interest and he could be guided accordingly.

The *Frisco-Man*—the magazine of the Frisco railroad—will, at an early date, begin the publication of a short catechism on everything in the railroad service from locomotives to tariffs.

These will be placed at the disposal of the superintendents of the different divisions who will give them to the boys who may be interested.

It is believed by doing this that the number of raw recruits will be greatly reduced, the work of selection will be lessened, and the time lost in fitting round pegs in square holes will be diminished; that the Frisco will gain the services of new employes who will have some knowledge of railroad service, and will also be a further gainer in the fact that those who are employed live in and are acquainted with its territory.

Contemporary Opinion

Injustice to Railways.

(From "Leslie's Weekly.")

UNFAIR! The glaring injustice of the government's treatment of the railroads in the matter of carrying the mails is brought out in a comparison of what Uncle Sam pays his own road and what he pays others. The government-owned Panama Railroad received last year, according to a statement by the committee on railway mail pay, $2.77 for each ton of mail carried a mile, while the private roads in the United States, according to estimates of the Post Office Department, received about 10 cents per ton for each mile. If this is the kind of extravagance the government ownership of railroads stands for, it will be a long while before the voters of this country will give it serious consideration. Had the privately owned railroads of the United States been paid on the same basis as the Panama Railroad, instead of receiving $56,000,000 or about one-fifth of the Post Office Department's revenues, they would have received $1,557,000,000, or more than five times the total revenues of the Department. The railroads have not asked Congress to advance mail pay rates. All they have asked for is to be paid for all the mail they carry and for all the special facilities and services they furnish the Post Office Department. Why not, Uncle Sam?

Mr. Burleson Answered.

(From "Concerning Municipal Ownership.")

THE statements of the Postmaster-General to the effect that the railroads, in spite of all assertions to the contrary, are overpaid by the government for carrying mail matter have attracted considerable attention. As a matter of fact these are half truths. For example, Mr. Burleson says that from New York to Chicago railway mail pay amounts to $2.58 per 100 pounds, while the railroad's proportion of the first-class express rate between these two cities is $1.20 per 100 pounds.

Now Mr. Ralph Peters, Chairman of the Railways' Committee on Mail Pay, shows that the express rate Mr Burleson names is not an average nor in any way a representative rate but is the railroad's share of the express company rate on a single 100 pound package, on which the very lowest wholesale rate is given to the shipper. A great bulk of the express business is made up of the smaller packages so that their average receipts per 100 pounds of express are far higher than the figure Mr. Burleson quotes. For carrying 100 one-pound packages from New York to Chicago the express company receives 23 cents apiece, in all $23. Of this amount the railroad's share is about $11.50, which is nearly four and one-half times the rate for carrying 100 pounds of mail. This, of course, is an extreme case but no more extreme than the one Mr. Burleson himself cites. The average would lie somewhere between the two figures.

Pullman Tips and Others.

(From the "Wall Street Journal.")

FRANK P. WALSH, of Missouri, otherwise known as the Federal Commission on Industrial Relations, has performed a public service in investigating the tipping system as it exists on the Pullman sleeping cars. It is frequently the case with Government investigations that nothing is disclosed not already generally known. But it was worth while to obtain the admission of the chairman of the Pullman Company that the company is the real tip-taker.

Tipping as a custom has not, as many persons assert, grown up on a basis of cowardice or servile imitation. When you enter a sleeping car or a restaurant, knowing that the attendants are not paid a living wage by the proprietor thereof, you put yourself under a moral obligation to give the customary tip. Otherwise you accept without compensation the service of a laborer who cannot help himself. It is no answer to say that the berth fare or the price charged for the food is sufficient to cover a living wage for the employes. Probably it is, but the patrons of such places understand fully that the wage does not come out of the proprietor's direct receipts.

Basing the fixed wages of attendants, as they do, upon the knowledge that their patrons will pay so-called gratuities, the owners of restaurants, hotels and sleeping cars become the real beneficiaries of the tipping system. Thus the system becomes one of "gouging" considerable sums out of the public, in addition to the already ample charges for bed and board. Hotel keepers are prone to deny the harsh impeachment; but Chairman Lincoln of the Pullman Company, had the refreshing candor to admit that a part of that corporation's eight per cent dividends on $120,000,000 capital stock, itself largely issued as stock dividends, in reality comes out of the traveler's quarter or half dollar which the porter more or less gratefully acknowledges.

It is an evil from which the public can relieve itself only through legislation, if at all. No one who frequents the public tables or travels on a sleeping car relishes the idea of initiating reform by withholding tips, for that would be to throw the burden at least temporarily upon those least able to bear it. If the public could be brought at once to a fairly general decision to force the change in this manner, wages would quickly be adjusted, as Mr. Lincoln conceded. But that is too much to hope for.

Whether the public will get the service it wants under a system of fixed wages and anti-tipping laws remains to be seen. Such laws in themselves would invite evasion, and invitation which porters and waiters would heartily second. But doubtless the Walsh Commission will beautifully simplify what has become a public nuisance.

Expert Opinion.

(From "Financial America.")

ONE million dollars is not ordinarily a large expenditure for a big railroad system to make for equipment or extensions or betterments, but in days such as these an expenditure of that size assumes much significance, especially if it be accompanied by the statement that it is justified because of improved business conditions.

President Thomas, of the Lehigh Valley Railroad, in a letter to President Wilson, makes this interesting statement:

> We will soon award contracts involving $1,000,000, this expenditure being justified by improved business conditions at this time. We also contemplate certain additional expenditures as soon thereafter as conditions improve in the manner I believe they will.

It is not an uncommon practice for American Presidents to ask the heads of corporations for opinions as to business conditions. Mr. Thomas' statement was not solicited by the President, it having been made in explanation of a previous expression which had been misconstrued in some quarters. But would it not be a good thing for the country if men at the head of important enterprises would take occasion now and then voluntarily to give, not necessarily to the President but directly or indirectly to the public, a sincere expression of business opinion, with something concrete, if possible, to bear out their views? Frankness and publicity are important factors in the modern conception of co-operation.

A Make Shift Award.

(From "Financial America.")

AN award thoroughly satisfactory to both sides in the western railroad wage case would be an impossibility, considering the manifold ramifications of the case. But it is distinctly disappointing to the public at large that the present award is so unsatisfactory to both sides that it represents little more than a makeshift, a temporary compromise which simply puts off the agony of another long period of examinations and wranglings, an armed truce which delays and does not settle.

A study of the award, of the dissenting opinion filed on behalf of the Brotherhood of Enginemen and of the statement issued by the representatives of the railroad companies in explanation of their position, gives ground for the opinion that in this present case, as in the eastern railroad wage question, there would have been no award possible but for the conciliatory attitude of the railroad companies. In the former case many concessions were made by the railroads which they declared at the time and have repeated since they considered justifiable only on the ground of a recognition that public welfare could not wait on the obstinacy of the petitioners. In the present case as in the former there was much solid ground on which the application for increases and readjustments in wages was based. But the employes now as then entered the arbitration proceedings with no desire or purpose to make concessions of any kind.

The one hopeful point in the present situation is afforded by the statement of Judge Pritchard, chairman of the Arbitration Board, who expresses the belief that, as respects many of the propositions submitted, there was approached as near as was possible at this time a standardization of many rules and rates. But even Judge Pritchard's statement reveals the tentative nature of the award.

It is clear that the present regulations governing arbitration proceedings of this kind must be changed. Here is a matter to which President Wilson should give special attention during the course of the next year so that, if possible, when the terms of the present award expire on May 10, 1916, a new plan, giving greater assurance of satisfactory results, will be available.

Railway Gloom Lifted.

(From the "St. Louis Globe Democrat.")

THE gloom that has for some time enveloped the railways of America seems to be lifting. The New York Central stockholders have in an incredibly short time subscribed for the $100,000,000 bonds recently authorized. The Pennsylvania has placed large orders for equipment. The Missouri Pacific makes public announcement that its notes will be renewed and that the supposed imminence of a receivership has disappeared. President Schaff of the Missouri, Kansas and Texas states that 87 per cent of the $19,000,000 notes due to-day have been deposited under the extension agreement for one year at six per cent. The road has made an excellent showing of earnings recently and the special committee for financial rehabilitation is optimistic. The plans for reorganization of the Wabash and the Frisco have just been announced and there is confidence that the receiverships will soon end. The new Rock Island receivership is being attacked as unnecessary.

Many conditions have combined to better the financial prospects of the railways. The relief granted by the Interstate Commerce Commission to the Eastern railways doubtless had a great influence. It was taken as an index of an attitude of fairness which many capitalists had begun to distrust. The cordiality with which the public generally supported the action of the commission was another source of confidence. That regulation "does not mean strangulation" has been emphasized in quarters least expected. This revived confidence in railway securities, although, of course, there is no sure way of determining to just what extent. The increased earnings shown in the last statements of several of the roads, the general feeling of improved business prospects, the glowing crop reports, and the abundance of money revealed by the last consolidated report of the condition of the banks of the country have all contributed to the new optimism.

When the rate increase was granted the Eastern railways, we compared it to "priming the pump." It meant an immediate increase of expenditures by shippers, but this is being followed by streams of business which show that it was a wise investment. While the public will insist on economic and efficient management of railway properties and will demand a supervision of securities to make impossible a repetition of the scandals which had much to do with widespread distrust of and hostility toward all railroads, there is a fuller realization of how much general prosperity is dependent upon the condition of the transportation system.

Railroad Discipline.

(From the "New York Commercial.")

STANDING at the bar of the court of public opinion, as well as before the Federal Industrial Relations Commission at Washington, the Pennsylvania Railroad, through its vice-president, W. W. Atterbury, defended its relations with its employes and the public. This railroad has had little trouble with labor in the past and it is doing much for those in its employ that was not dreamed of a few years ago. Its management believes that the company's greatest asset is the loyalty and efficiency of its men and its policy is to protect that asset by paying liberal wages and providing every feasible safeguard for the personal safety of both employes and patrons.

What labor forgets and demagogues try to keep in the background is the duty which this and every other railroad owes to the public. A railroad must maintain continuity of operation at all costs. The mails must be delivered and urban dwellers must be supplied with food. Cut off the milk supply of New York City or Philadelphia for forty-eight hours and thousands of babies would die. Dependence on the railroads has become so absolute that a general tie-up would be worse than any foreign war.

The Pennsylvania Railroad protects itself and the public it serves against this risk as far as possible by discouraging trade unions which are able or liable to call sympathetic strikes. Discipline must be maintained at all hazards, but discipline cannot degenerate into oppression because men cannot be compelled to work and a railroad must conform to what the people believe to be just. Lack of discipline was the cause of three disastrous wrecks in quick succession on the New Haven Railroad and railroad officials have learned the lesson and remember it even if the public is beginning to forget how men and women were killed on one section of the New Haven Railroad in Connecticut when safety was subordinated to peace with the labor unions. The Pennsylvania Railroad is and has been willing to treat with its employes, but it is opposed to employes affiliating themselves with an organization which might tend to undermine discipline.

Open Shop for All Men.

(From the "Philadelphia Public Ledger.")

THE duty of the Pennsylvania Railroad and of every other railroad, so far as it relates to employes, is clearly defined by Vice-President Atterbury. Free labor and an open shop, union or non-union, is the only sane and safe rule to follow. The Pennsylvania makes no discrimination against union men, and it ought to make none. At the very same time its doors are open to non-union workmen, and they should remain wide open to them forever. Mr. Atterbury very properly says that a railroad owes a duty to its owners, to its employes and to the public. Neither the owner nor the employe has any legal or moral right to do aught that will harm the third party, which is the public. And the public neither by law nor by its moral influence has any right to do aught that will injure the owner or the workman.

The great majority of all employes on all railroads is non-union. It would be a most non-democratic and un-American thing to compel the greater body to join the lesser on pain of losing its occupation. It would also manifestly be unfair to discharge the union men only who prefer to become members of some organization. Freedom for all, equal rights for all, and equal wages for all when rendering the same service is the one safe and sound policy for any railroad to pursue. To carry passengers and freight is a railroad's first function, and passengers and freight supply all the revenue which pays both the owners and the employes of every railroad. It becomes the business of railroad managers to keep their forces so thoroughly in hand and disciplined that their primary duty of supplying transportation shall never be jeopardized.

The public is not interested in the minor details of the means employed by railroads to keep themselves informed about their internal affairs. The public demands results in safe, quick and regular transportation. This can only be procured year in and year out by adhering strictly to the broad principle of an open shop for all honest men, without fear, prejudice or favor.

A Railroad Incident.

(From the "Railroad Reporter and Travelers' News.")

FOUR passengers about to take the New Haven's "Merchants' Limited" were standing on the platform of the South Station in Boston one afternoon recently viewing the long train of ten cars, the limit allowed for that train under the road's rules. Evidently the size of the train impressed one of the group, for he made the remark that the railroad was trying to accomplish something when it attempted to run so many cars behind an old engine and call it a limited train.

J. P. Mosher, one of the railroad's foremen of engines, was standing on the platform near the group and overheard this remark. Walking over to the man who made it, Mosher asked him pleasantly if he might have the privilege of correcting, if possible, the idea he had expressed.

"Why, certainly," said the passenger, "I'm always willing to be corrected when I'm in the wrong."

It was but a few steps to the engine and thither the boss locomotive man led the group. The engine, ready with steam up for its trip over the rails, was a big Pacific standard locomotive, the largest and latest type in the road's service and the kind used to pull all limited trains between Boston and New York. Standing beside it, the locomotive foreman revealed its points as the trainer would the lines of the thoroughbred, showed them the latest valve gear, explained the superheater by which steam is heated and used over again to assist in turning the great drivers, and also a new smoke burning device which the road was testing for its merits.

In addition, this experienced railroad engine man explained what was done to the big machine before it was attached to the train; how it was groomed for each run like the race horse and thoroughly inspected by competent mechanics before it left the roundhouse as a part of the regular railroad routine, so that if it broke down on the road it would be from a cause which could not be ascertained in advance. "And now," he said, when he had finished, "perhaps you'll understand how I feel when I hear such a remark as yours, inasmuch as the proper performance of this engine is part of my job."

Before taking leave of them Mosher had one question to ask. It was how such an idea about the railroad he worked for had been obtained, in view of the fact that it was running more trains on time in proportion to the number operated than any other great railroad in the country. The man replied by saying that it was from talking with people that did not know anything more about the true condition of things than he did.

"But," he added, as he shook hands with the Road Foreman, "I will always boost the New Haven from now on, and I wish to say that this has been a very pleasant conversation and that my only regret is that I can't have the pleasure of riding with you in that engine to New Haven."

This incident subsequently came to the attention of President Howard Elliott, with the result that this Road Foreman, who had taken the trouble to show off his engine in this manner, received a letter from the President in which Mr. Elliott said:

"I am very much gratified that you took the trouble to explain the situation to these gentlemen. One of the troubles with the New Haven Road, and in fact with all roads, is that some people make thoughtless remarks and unjust criticisms without knowing the real facts. It is important and desirable that every responsible officer and employe do just what you did. in a courteous and pleasant manner. If we explain all the time to the patrons of the road what we are trying to do, that we are not perfect, but that we are endeavoring to do better, it will have a good effect."

Personal

Walter P. Cooke.

WALTER P. COOKE, who has recently been elected president of the New Orleans, Great Northern Railroad Company, was born in Buffalo, N. Y., in 1869. He graduated from Cornell University in 1891, and engaged in the practice of law in Buffalo. His firm is considered the leading law firm of that city, being counsel for some of the leading public service, banking and railway institutions.

Mr. Cooke is a director of the People's Bank of Buffalo, the Marine National Bank of Buffalo, Buffalo General Electric Company, Western New York Water Company, Goodyear Lumber Company, Buffalo Abstract and Title Company, the Federal Telephone Company, and the Rodgers-Brown Iron Company, and is vice-president and director of the Bankers' Trust Company of Buffalo. Mr. Cooke was formerly president of the Erie County Bar Association and a member of the Board of Managers of the Buffalo State Hospital for Insane; and he is now vice-president and trustee of the Buffalo Library, a trustee of the Buffalo Homoeopathic Hospital, and a director of the Buffalo Philharmonic Society. He is a member of the Beta Theta Pi Fraternity, and of the Buffalo, Saturn, Buffalo County, Park and Lawyers clubs of Buffalo, and of the Wanakah Golf Club.

Mr. Cooke is an executor of the Frank H. Goodyear estate, and has been practically in charge of the estate for several years. Frank H. Goodyear was one of the founders of the Great Southern Lumber Company, and his estate at present owns a large interest in the Company, as well as the stock of the New Orleans and Great Northern Railroad Company. Mr. Cooke's successful management of the Goodyear estate and the fact that four years he has been chairman of the Executive Committee of the Great Southern Lumber Company no doubt influences the action of the directors of the company in electing him president of the Lumber Company and of the N. O. G. N. Railroad Company.

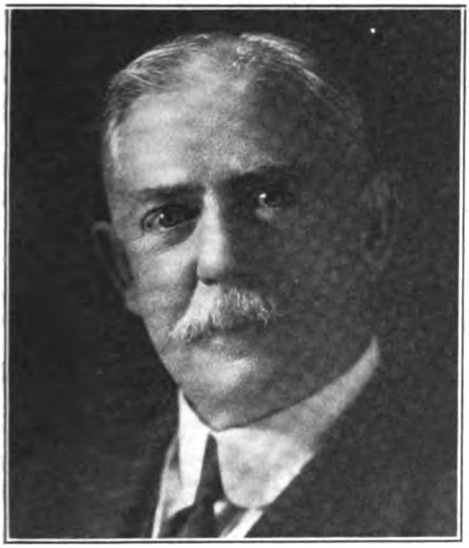
WALTER P. COOKE.

Henry Russel.

HENRY RUSSEL, for a number of years General Counsel for the Michigan Central Railroad, has been made vice-president. Mr. Russel was born in Detroit and after he graduated from the University of Michigan in 1873, promoted the organization of the Detroit Manufacturers' Railroad along the water front from Dequindre Street to Beaufait. In 1877 he became assistant attorney for the Michigan Central, and he has been associated with them since that time.

He undertook the construction of the Detroit Belt Line Railroad, an undertaking which was, at the time, far in advance of the requirements of the city, but which to-day is occupied by manufacturing sites to the limit of its capacity. Mr. Russel was also associated with Joseph Berry in the outer Belt Line, now the Detroit Terminal Railroad, and it was upon his advice that the Belt Line was made the joint property of several railroads rather than the exclusive property of one line, and the wisdom of this is proven in the free and untrammeled traffic use made by the mammoth institutions located now upon it and its ability to serve them adequately.

"Mr. Russel," says Mr. Waterfall, in discussing the appointment, "has, since the beginning of his business life, been an active factor in the development of the manufacturing industries of the city as a founder of several industries that have since grown to great proportions. Connected, as he is, with Detroit's financial world in his directorship in banks and trust companies and with his intimate personal acquaintance with the needs of Detroit's industries, he will be in a positon to judge with first-hand knowledge the requirements of Detroit's traffic and transportation. And there is reason to believe that Mr. Russel's appointment indicates that the Michigan Central Railroad is to have restored to it the measure of independent management

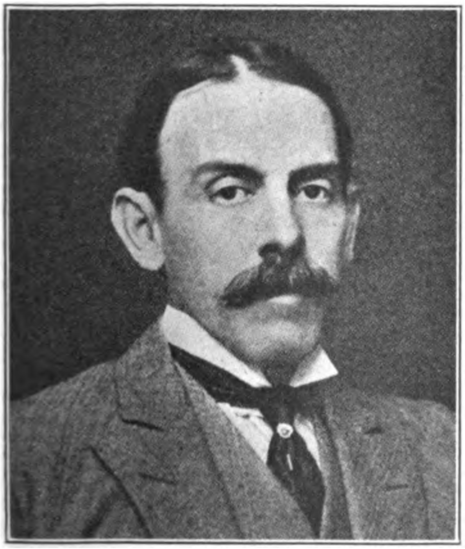


HENRY RUSSEL.

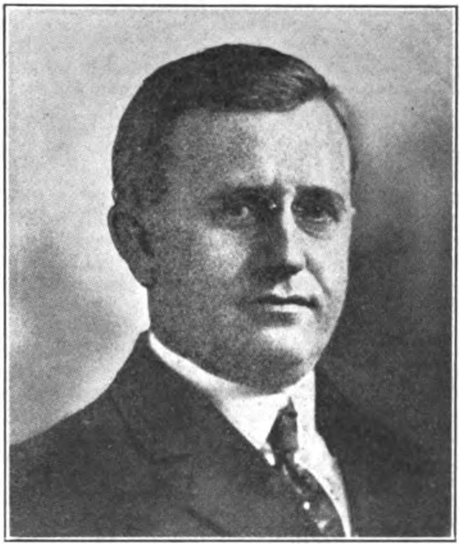
it formerly possessed, though still maintaining that close traffic and operating affiliation with the New York Central Lines necessary to insure an abundance of car equipment and continuation of the through passenger and freight service to the East now enjoyed by Detroit."

Henry W. Miller.

HENRY W. MILLER, who has been elected vice-president of the Southern Railway, with headquarters at Atlanta, Ga., was born in 1868, at Raleigh, N. C. He entered railway service in 1885, as loading clerk at the Raleigh freight house and as relief telegraph operator of the Richmond and Danville Railway. He filled successively at this point the positions of bill clerk, chief clerk at the station and rate clerk in the division freight office. In 1888, he left the traffic department to become chief clerk and secretary to the third vice-president of the same road, becoming secretary to the second vice-president on the organization of the Southern Railway. From 1894 to December, 1901, Mr. Miller was secretary to the first vice-president. He was then appointed assistant to the first vice-president, which position he held at the time of his recent election as vice-president. He has also served as secretary of various subsidiary lines of the Southern Railway, and has recently been elected vice-president of the Danville & Western Railway, Blue Ridge Ry., Augusta Southern Railroad, Tallulah Falls Railway and the Hartwell Railway. He is also president of the Kentucky & Indiana Terminal Railroad and the Durham Union Station.



HENRY W. MILLER.



William E. Farris.

WILLIAM E. FARRIS, who has been elected third vice-president of the New Orleans Great Northern in charge of operation, with headquarters at New Orleans, La., was born on November 22, 1870, at Sandborn, Ind., and was educated in the common schools. He began railway work on August 1, 1891, as a telegraph operator and agent on the Evansville & Terre Haute. He remained in the service of this company at various places until April, 1905, when he was appointed agent in charge of the Evansville & Terre Haute and the Chicago & Eastern Illinois terminals at Terre Haute, Ind. On December 31, 1910, he resigned from that position to go to the Buffalo & Susquehanna as assistant general freight and passenger agent; one month later he was promoted to general freight and passenger agent, and subsequently served also as purchasing agent of the same road until his recent election as third vice-president of the New Orleans Great Northern.

George H. Smith.

GEORGE H. SMITH, who has been appointed general attorney of the Oregon Short Line Railroad and general attorney for Utah of the Union Pacific Railroad, was born forty-one years ago. He was educated in the public schools of Utah and at the University of Michigan, graduating from the law department there in June, 1899, with a degree of LL.B. He entered the service of the Oregon Short Line as a law clerk in the law department July 1, 1899, was appointed assistant attorney January 1, 1900, and from that time until his recent promotion was the first and principal assistant to the general attorney. Since 1905, Mr. Smith has been assistant atorney for Utah for the Union Pacific and also assistant attorney for Utah for the Southern Pacific Company for a like period. Effective May 1, 1915, he was also appointed general attorney for Utah for the Union Pacific Railroad. From the spring of 1905 until March 15, 1915, he was also assistant general attorney for the Utah Light & Railway Co.

E. L. Lomax.

EDWARD L. LOMAX, who has recently been appointed passenger traffic manager of the Western Pacific Railway, was born at Fredericksburg, Va., in 1852. While he was educated in civil and mining engineering, he became imbued with the importance of the railroad service and entered the employ of the Burlington and Missouri River Railway in the general ticket office at Burlington in 1869. In 1872, he went to Marshalltown, Ia., as chief clerk to the general passenger agent of the Central Iowa Railroad and two years later became clerk to the general freight and passenger agent of the St. Louis and Southwestern Railway at St. Louis. In 1879 he was appointed assistant general passenger agent of the St. Louis Iron Mountain and Southern Railway and in 1881, was made general passenger and ticket agent of the Toledo, Cincinnati and St. Louis Railway.

His next service was with the Chicago, Burlington and Quincy, and in 1884, he was appointed general passenger agent of this road. In 1887 he joined the forces of the Union Pacific Railroad as first assistant to the general passenger and ticket agent and in 1889, received his appointment as general pasenger agent of this company. In 1910, he was appointed passenger traffic agent of the Western Pacific Railway, and in 1903, became assistant passenger traffic manager of the Denver and Rio Grande and Western Pacific roads, with jurisdiction extended to Denver. On April 1st, of the present year, he was appointed passenger traffic manager for the receivers of the Western Pacific Railway, as noted above.

E. L. LOMAX.

W. I. Jones.

W. I. JONES, who has been appointed general freight agent of the St. Louis Iron Mountain and Southern, began

W. I. JONES.

railway work in 1886 as a locomotive fireman on the Iron Mountain. He was employed in that capacity until October, 1888, when he was transferred to the local office of the Missouri Pacific and after remaining there about fifteen months went to the traffic department. He left railway work in May, 1891, returning in March, 1901, as chief clerk to the assistant general freight agent of the Missouri Pacific. In November, 1906, he was promoted to commercial agent at Monroe, La., returning to the general office as chief clerk to the freight traffic manager on November 1, 1907. Mr. Jones was made assistant general freight agent in December, 1910, and on August 1, 1913, he was appointed assistant to the general traffic manager of the same road. In March, 1914, he was appointed assistant to the vice-president.

E. A. Hadley.

E. A. HADLEY, who has been made chief engineer of the Missouri Pacific Railway and the St. Louis, Iron Mountain and Southern Railway Company, was born in Lowell, Mass., in 1879, and was educated in the common schools. He was apprenticed to Smith and Brooks, civil engineers, from 1897 to 1901, where he secured a combined course of engineering study and practice. He entered railway service in 1901, as draughtsman with the Boston and Maine and was soon promoted to the position of assistant engineer and then to resident engineer. He stayed with this road until 1910, and during the last five years of this period, was engaged on heavy construction work, particularly in the elimination of highway grade crossings. On June 1, 1910, he went to the Missouri Pacific as engineer of design and has been with the Company since that date. During the past eighteen months, he has been engaged on special engineering investigations for the President's office.

B. J. Schwendt.

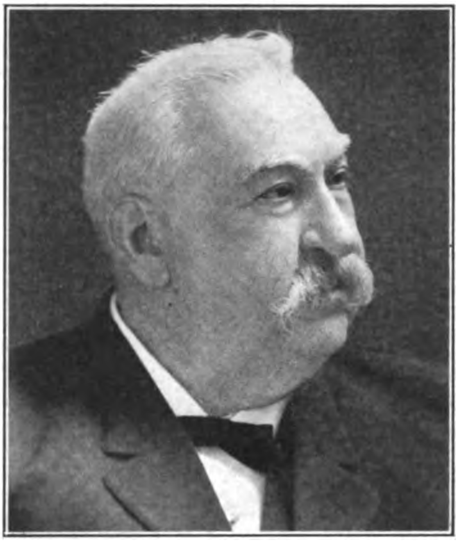
B. J. SCHWENDT, signal engineer of the Toledo & Ohio Central, and the Zanesville & Western, has been appointed superintendent of telegraph and signals of the same roads, retaining jurisdiction over the signal department, with headquarters at Columbus, O., effective on April 1, 1915. Mr. Schwendt was born in 1884, at Greenspring, Ohio, and obtained his early education in the grammar and high schools of that place.

B. J. SCHWENDT.

In November, 1903, he entered Ohio State University at Columbus, graduating in 1907 with the degree of mechanical and electrical engineer. During the summer months of 1905-6 he was employed by the Allis-Chalmers Electrical Company, in the Bullock works at Cincinnati, Ohio, as winder and assemblyman. In June, 1907, he entered the service of the Union Switch & Signal Company and was engaged is the installation of electric and mechanical interlocking and automatic signals on the Pennsylvania Lines West, the Baltimore & Ohio, and the Erie. During this time he served in various capacities, from laborer up. In March, 1909, he was appointed supervisor of signals for the Toledo & Ohio Central, Hocking Valley, Kanawha & Michigan, and the Zanesville & Western, with headquarters at Columbus, Ohio. On January 11, 1912, he was appointed signal engineer of the Toledo & Ohio Central and Zanesville & Western.

Obituary

Colonel Alexander Boyd Andrews, first vice-president of the Southern Railway, with office at Raleigh, N. C., died on April 17th, at his home in that city. He was born on July 23, 1841, in Franklin County, N. C., and from 1859 to 1861 he served as purchasing agent, paymaster and general superintendent for the contractor on the Blue Ridge Railroad. After the Civil War he leased, equipped and operated a railway ferry for the Raleigh & Gaston, now a part of the Seaboard Air Line, and the Petersburg Railroad, now a part of the Atlantic Coast Line, at Gaston, N. C. From July, 1867, to November, 1875, he was superintendent of the Raleigh & Gaston and the Raleigh & Augusta, and then was superintendent of the North Carolina division of the Richmond & Danville. He was elected president of the Western North Carolina in 1881, and completed that road. From 1878 to 1880 he was also superintendent of the Atlantic & North Carolina, now a part of the Norfolk Southern, and superintendent of the North Carolina division of the Richmond & Danville. In 1883 he was appointed assistant to president of the Richmond & Danville, remaining in that position until 1886, when he was elected third vice-president, and from December, 1889, to June, 1894, was second vice-president of the same road. From July, 1892, to June, 1894, he was also general agent for receivers of the same road. He then went to the Southern Railway as second vice-president, and since October 1, 1895, was first vice-president of



ALEXANDER B. ANDREWS.

that road, also of the Mobile & Ohio, and the Alabama Great Southern, and president of the Danville & Western, Blue Ridge, Tallulah Falls, and Augusta Southern.

Samuel Bancroft, Jr., chairman of the Board of Directors of the Huntingdon & Broad Top Mountain Railroad & Coal Company, died on April 22nd, in a hospital in Philadelphia, Pa., at the age of 75.

William H. Bancroft, vice-president of the Oregon Short Line, and first vice-president of the San Pedro, Los Angeles & Salt Lake, died at Salt Lake City, on April 22nd, of apoplexy. Mr. Bancroft was for several years vice-president and general manager of the Oregon Short Line, but retired from active service on February 1, 1914, retaining the title of vice-president. He was born on October 20, 1840, at Newberg, Ohio, and entered railway service in April, 1856, as telegraph operator and ticket clerk of the Michigan Southern. From 1861 to 1869, he was division operator, clerk and despatcher on the Erie, and from 1869 to 1872, was despatcher, superintendent, clerk and train despatcher on the Kansas Pacific. On October 20, 1872, he was appointed assistant superintendent of the Atchison, Topeka & Santa Fe, and in May, 1875, was appointed superintendent of the St. Louis, Lawrence & Western. For a short period in 1878 he was chief despatcher of the Missouri, Kansas & Texas, and from April, 1878, to July 28, 1886, was superintendent of various divisions of the Denver & Rio Grande. From August 15, 1884, to July 29, 1886, he was also receiver of the Denver & Rio Grande Western. On the latter date he was appointed general superintendent of the Denver & Rio Grande, which position he held until 1890, when he entered the service of the Union Pacific as general superintendent of the Mountain Division. This position he held until March, 1897, when he was made vice-president and general manager of the Oregon Short Line. On January 15, 1904, he was made general manager of the Union Pacific. In April, 1904, he returned to the Oregon Short Line as vice-president and general manager, which position he held until February 1, 1914. From November, 1904, to February, 1905, he was also acting general manager of the Southern Pacific. In March, 1905, he was also elected first vice-president of the San Pedro, Los Angeles & Salt Lake, and on November 1, 1906, also president of the Utah Light & Railway Company.

WILLIAM H. BANCROFT.

John F. Boniger, secretary and treasurer of the Texas-Mexican Railway, died at Laredo, Texas, on April 21st, aged 49 years. He had been secretary and treasurer of this company for the past 22 years.

Robert S. Brown.—Friends and associates of the late district passenger agent of the Baltimore & Ohio Southwestern Railroad at Louisville, Ky., are publishing a tribute to his memory. Mr. Brown died on April 21st, 1915, and the following memorial is offered by the Louisville Passenger Committee:

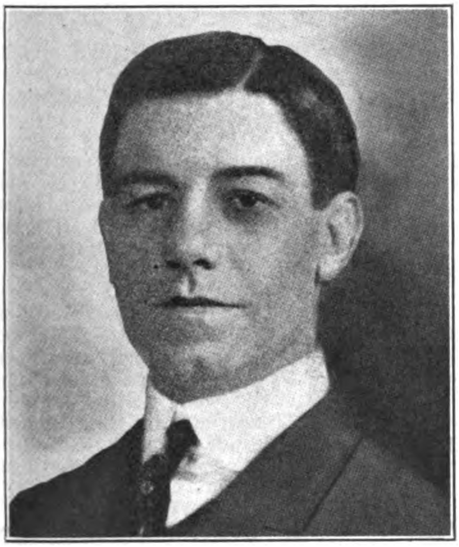
"We, the Louisville Passenger Committee, confronted with the deplorable death of our colleague and associate, Robert S. Brown, desire to place on record our loyalty to his memory; our gratitude for the privilege of his comradeship; our appreciation of the great gifts that were his; our love of one who, to each of us individually, as to all of us collectively, was the dearest of friends.

"Our connection with Mr. Brown has been of the closest; our relations of the most intimate. We have relied upon him for all the many and various activities assigned to him, and we have never been disappointed. We knew him sage in counsel; splendid in devotion to the work before him; serene and sunny and smiling in all days of stress. Never selfish, never narrow, always broadly dedicated to the good of the commonwealth and to the advancement and welfare of the people of Louisville.

"With every assurance of respectful sympathy, with every expression of brotherly condolence, we desire to associate ourselves in the sorrow of those whose only consolation is a good name, a memory beloved and the consciousness of a noble life nobly lived."

E. H. BACON, Secretary.
C. H. HAGERTY, Chairman.

E. H. Calef, general freight agent of the St. Louis, Iron Mountain & Southern, who died on April 21st, at his home in St. Louis, Mo., was born in St. Louis in 1867. His entire railway career was on the Missouri Pacific-Iron Mountain System. He began railway work in January, 1884, as a messenger in the freight claim department and later became traveling freight agent in the Indian Territory and other fields. In 1899 he was appointed commercial agent at Sedalia, Mo., and in March, 1905, was appointed division freight agent of the Iron Mountain at Little Rock, Ark. In September, 1908, he was made assistant general freight agent, with headquarters at St. Louis, and on June 1, 1913, he was appointed general freight agent of that road, with office at St. Louis.



E. H. Calef.

William E. Chamberlain, formerly from July, 1898, to April, 1904, general manager of the New York, New Haven & Hartford, died on April 22nd, at his home in Brookline, Mass., at the age of 80. At the time of his death Mr. Chamberlain was general manager of the Armstrong Transfer Company.

O. S. Cockey, general agent of the Grand Trunk Railway System, headquarters New York, died at White Sulphur Springs, Va., on the evening of May 9th. Mr. Cockey was in his sixty-first year, and had been in the service of the Grand Trunk since 1880. His first railway experience was with the Pennsylvania Railroad at Pittsburgh. Later he joined the Great Western Railway, which was taken over by the Grand Trunk System. Mr. Cockey had been the freight representative of the Grand Trunk in the city of New York since 1883, with the title of General Agent from 1891. He was widely known to shippers and railroad men and was a recognized authority on all matters relating to freight traffic.

Eldredge Dale, former official of the Philadelphia & Reading Railway, died at his home in Reading, Pa., April 27th, at the age of 73. Years ago he was a consulting engineer for the Pennsylvania Railroad. He later superintended the construction of the Sixth Avenue elevated line in New York. In 1880 he was made superintendent of the Schuylkill & Lehigh Railroad. He was in charge of the construction of the subway leading to the Reading Terminal in Philadelphia.

Peter Fraser, superintendent of the Middle and Pittsburgh divisions of the Buffalo, Rochester & Pittsburgh Railway, with headquarters at Du Bois, Pa., died suddenly in that city April 8th, aged 54 years.

Union B. Hunt, former chairman of the Railroad Commission of Indiana, died at Indianapolis on May 3rd.

Burton Johnson, formerly from January, 1897, to November, 1906, general freight agent of the Wisconsin Central, died at his residence in Chicago on April 18th, aged 62 years. Mr. Johnson entered railway service in 1879 with the Chicago & North Western as a clerk in the general freight department and remained with that road until January, 1897, at which time he held the position of second assistant general freight agent. He then went to the Wisconsin Central as general freight agent.

Lieutenant-Colonel Lacey R. Johnson, former general superintendent of the Angus Shops District, recently appointed general welfare agent of the Canadian Pacific Railway, at Montreal, Quebec, died in that city April 17th. He was born June 22, 1855, at Abingdon, Berkshire, England. He became connected with railway work in Canada in 1882, and until November, 1882, was with the Grand Trunk Railway. From 1882 to 1885 he was general foreman of the Canadian Pacific at Carleton Junction, Ont. He was successively assistant master mechanic and master mechanic of the Eastern Division and then master mechanic of the Pacific Division and supervising engineer of the Pacific fleet steamships of the same company. He was made assistant superintendent of motive power of the same road at Montreal in 1901, and in 1912 was promoted to general superintendent of the Angus Shops District. He was recently appointed general welfare agent.

R. W. McCormick, superintendent of the Canadian Pacific Railway, at Farnham, Ont., died April 23rd. He had been with the company nearly thirty years.

James McGee, master mechanic of the Lorain, Ashland & Southern, with headquarters at Ashland, Ohio, died at his home in Lorain on April 6th, aged 56 years.

G. W. McMullen, of Picton, Ont., who was one of the leaders in the construction of the Central Ontario Railway, now a part of the Canadian Northern Railway, died suddenly in Chicago, March 23rd, of heart failure.

David James Mackey, formerly from 1881 to

December, 1892, president of the Evansville & Terre Haute, died on April 9th, at Evansville, Ind., aged 82 years. Mr. Mackey was president also of the Louisville, Evansville & St. Louis from April, 1889, to 1894.

J. Markey, master mechanic of the Grand Trunk Railway, at Toronto, Ont., died in that city April 24th.

Henry L. Millis, manager of the Western Livestock Express, Chicago, died at his home in Chicago on April 2nd.

Eli A. Miller, superintendent of motive power of the New York, Chicago & St. Louis, with offices at Cleveland, Ohio, died at his home in Cleveland, on April 18th, after having been ill with pneumonia since April 7th. Mr. Miller was born May 1, 1847, in Washington County, Pa., and was educated in the public schools. He entered railway service in 1865, with the Cleveland & Pittsburgh, and was consecutively laborer and helper until 1866. From 1866 to 1871, he was machinist apprentice and machinist with the Pittsburgh, Cincinnati & St. Louis, at Dennison, Ohio. From 1871 to 1873, he was machinist for the Louisville & Nashville, at Bowling Green, Ky. In 1873, he was made foreman of the Pittsburgh, Cincinnati & St. Louis, and later, in 1880, he was made roundhouse foreman of the same road, at Columbus, Ohio. In 1882, he was appointed master mechanic of the New York, Chicago & St. Louis, at Conneaut, Ohio, which position he held until May 1, 1905, when he was appointed superintendent of motive power of the same road, with office at Cleveland.

Henry W. Poor, president of Poor's Railroad Manual Company, died at his home in New York City, April 13th, at the age of 71. He was a director of the Missouri, Kansas & Texas; and, as a banker, had other important railroad interests; but he is best known to readers of the "Railway Age Gazette" by his connection with Poor's Manual of Railroads, a name which has been a household word in railroad offices for nearly half a century. He was born in Bangor, Me., his father being Henry V. Poor, who was editor of the American Railroad Journal (now the Mechanical Edition of the "Railway Age Gazette"), from which he retired in 1863. Henry W. Poor was graduated from Harvard College in 1865, and in 1868 became a partner with his father in the banking firm of H. V. & H. W. Poor; and in that year the first number of the Manual was issued. This annual publication, still an essential part of the equipment of the railroad officer's library, was, until the establishment of the statistical office of the Interstate Commerce Commission, in 1887, of still more importance than now; for it was the only source of detailed information concerning the financial affairs and history of the railroads of the United States.

Charles E. Potts, formerly until July, 1913, assistant treasurer of the Chesapeake & Ohio, at Richmond, Va., died at his home in Ashland, on April 19th, at the age of 63.

Charles Walter Rhodes, assistant treasurer of the Baltimore & Ohio, died suddenly on April 14th, in Baltimore, Md. He was born on January 28, 1853, near Westminster, Md., and in February, 1869, entered the service of the Baltimore & Ohio.

M. C. Roach, superintendent of the New York Division of the Lehigh Valley, with headquarters at Jersey City, N. J., died on April 12th, at his home in Passaic, N. J., at the age of 46.

Stephen O. Snyder, former assistant superintendent of the Rio Grande Western Railway at Salt Lake City, Utah, died in that city April 22d, aged 65 years.

Albert G. Tuttle, formerly division general freight agent of the New York & New England, at Hartford, Conn., and later in the service of its successor, the New York, New Haven & Hartford Railroad, in the general freight office at New Haven, until he retired from railway work in 1904, died on April 2nd, at Hartford, at the age of 81. He was a brother of the late Lucius Tuttle, formerly chairman of the board of directors of the Boston & Maine Railroad.

Financial

The Outlook.

THE sinking of the Lusitania and the stand taken by this Government with reference thereto, have constituted the factors of greatest influence in financial circles, during the present month.

The immediate effect of the sinking of this great passenger steamship, was a sharp break in the price of securities, but later some recovery was made, due to a growing conviction that the situation, grave as it was, could eventually be met without this country engaging in actual warfare. Now that Italy has entered the fray, it would appear incomprehensible for Germany to refuse the demands of the United States, made as they are, in the name of humanity and morally backed by every neutral nation on earth.

Furthermore, the nation has great faith in President Wilson, and believes he will use his high office and his fearless moral influence to avert in every honorable way, such a calamity. Germany may yet force a severance of diplomatic relations with this country, but it is firmly believed and hoped in many well informed quarters, that the controversy will never reach this stage, and that the United States will not be forced to the extremiy of an actual declaraion of war.

With such influences as are now affecting the market, it is impossible to even guess at what the future has in store. Conditions are decidedly spotted, and while reports of great industrial activities are coming from certain sections, these are the result of enormous orders placed by the warring European nations.

Railway conditions, which present an important controlling influence in national prosperity, are far from satisfactory. Earnings are not showing the net results which are necessary for efficient and progressive operation, and are not enabling the carriers to raise the large sums necessary for proper up-keep, betterments and improvements. So long as these conditions exist the business of the country will lack the assistance of large buying orders, necessary to keep general demands up to a point where good profits can be realized.

While the railroad bond market is showing a decidedly better tone, and has permitted some of the stronger companies to accomplish much needed financing, the situation is not encouraging so far as the average road is concerned, and unless net results show a decided improvement, many roads will be compelled to further delay those improvements and betterments which would prove stimulating to the entire commercial field.

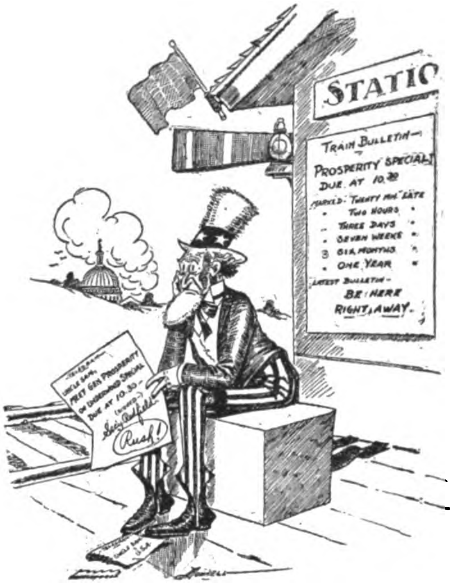
A recent encouraging sign, however, has been the placing of important equipment orders by a number of the more prominent roads, and while this policy has not become general enough to insure its continuance on a large scale, it has led to the hope that the turning point has been reached, and that the supply trade in general will be able to note a permanent and considerable improvement during the present year.

Export figures are piling up enormous totals, and the balance of trade now in our favor has led to a feeling of great security so far as our commercial dealings with foreign nations are concerned. Furthermore, never in the history of the country, have the preliminary reports on agricultural production been so uniformally favorable. Bumper crops are predicted in all the manifold branches of this enormous industry, and late summer and fall should undoubtedly find the United States in a position to send enormous exports of food stuffs to the European countries, from whom may be anticipated a tremendous demand. All this spells prosperity, and while the future is befogged by European conditions, and to some extent, by our own political policies, there is still abundant reason to be thankful for our American citizenship, and for the legitimate opportunities which this great country has to offer.

Operating Results for February.

THE Bureau of Railway Economics at Washington, has issued a report covering the revenues and expenses of steam roads in the United States during February. According to this report the net operating income of the railways of the United States for February increased $52 per mile, or 44.3 per cent as compared with February, 1914; but February, 1914, was an abnormally poor month, net operating income per mile being 44.0 per cent less than in February, 1913. The increase shown this month, which only partially overcomes the considerable decrease in the same item a year ago, is the result of radical reductions in operating expenses.

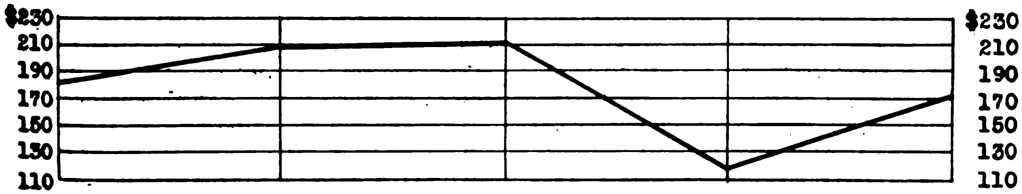
Watchful Waiting.



—from *St. Louis Globe Democrat.*

Total operating revenues amounted to $205,112,212, a decrease from 1914 of $1,961,957. Operating expenses were $155,031,302, a decrease of $13,966,146. Net operating revenue amounted to $50,080,910, an increase of $12,004,189. Taxes amounted to $10,995,903, a decrease of $296,011. This left $39,028,155 for net operating income, available for rentals, interest on bonds, appropriations for improvements and new construction, and dividends. Operating revenues per mile of line averaged $897, a decrease of 1.9 per cent; operating expenses per mile averaged $678, a decrease of 9.1 per cent; net operating revenue per mile averaged $219, an increase of 30.3 per cent, while taxes per mile were $48, a decrease of 3.5 per cent. Net operating income per mile was $171, an increase of 44.3 per cent. Railways operating 228,678 miles of line are covered by this summary, or about ninety per cent of the steam railway mileage in the United States.

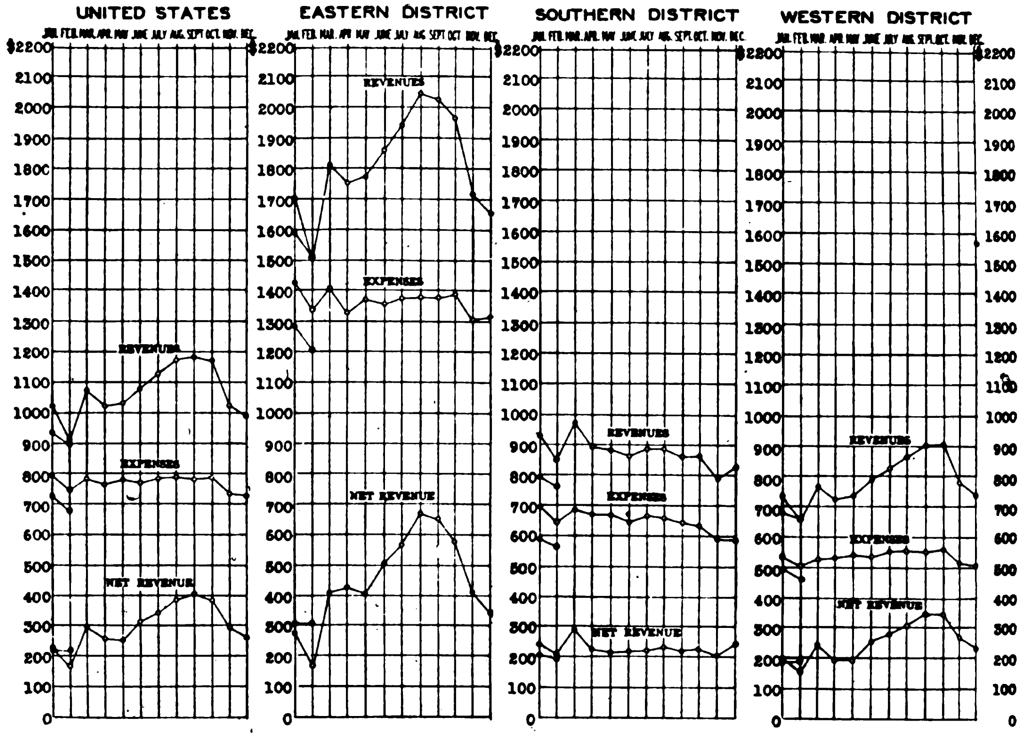
TREND OF OPERATING INCOME PER MILE OF LINE FOR THE MONTH OF FEBRUARY



MONTHLY REVENUES AND EXPENSES PER MILE OF LINE

ROADS HAVING ANNUAL OPERATING REVENUES ABOVE $1 000 000·

CALENDAR YEAR:
1914 ○
1915 ●



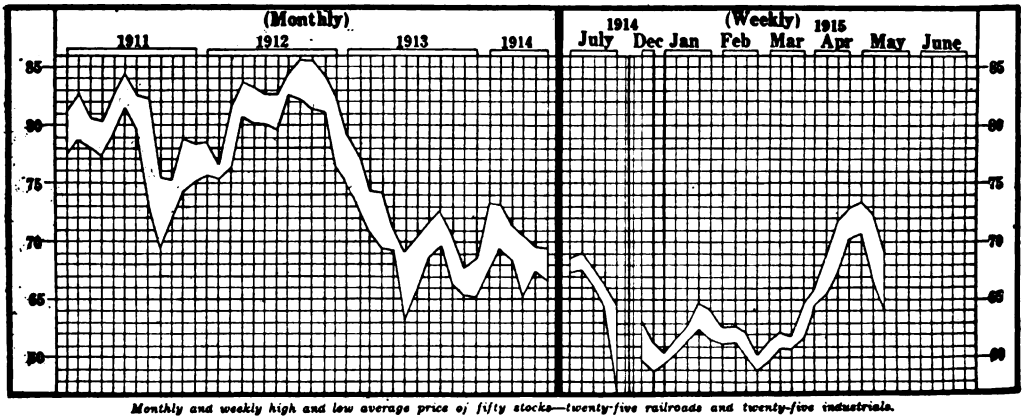
The points on the vertical lines are of significance only in showing the condition for the particular month. The lines connecting the points assist in tracing the change from month to month but do not indicate the trend during the month, nor are they cumulative for the period.

Total operating revenues of the Eastern railways per mile of line increased less than one-tenth of one per cent as compared with February, 1914, operating expenses decreased 10.2 per cent, net operating revenue increased 81.8 per cent, taxes decreased 3.3 per cent and operating income increased 158.9 per cent. Even this considerable increase over 1914 failed to bring operating income per mile up to the level of 1913, 1912 or 1911.

Total operating revenues of the Southern railways per mile decreased 10.4 per cent, operating expenses decreased 11.6 per cent, net operating revenues decreased 6.7 per cent, taxes decreased 6.6 per cent, and operating income decreased 6.9 per cent.

Total operating revenues of the western railways per mile increased less than one-tenth of one per cent, operating expenses decreased 6.4 per cent, net operating revenue increased 21.0 per

The Course of the Stock Market



Monthly and weekly high and low average price of fifty stocks—twenty-five railroads and twenty-five industrials.

cent, taxes decreased 2.5 per cent and operating income increased 28.8 per cent.

The eight months of the current fiscal year show a decrease in total operating revenues per mile of line of 7.9 per cent as compared with the corresponding period of the preceding year, a decrease in net operating expenses per mile of 9.7 per cent, and a decrease in net operating revenue per mile of 3.2 per cent.

This net operating revenue per mile increased 3.7 per cent in the East, decreased 17.8 per cent in the South, and decreased 3.7 per cent in the West.

February operating income per mile was 44.3 per cent greater in 1915 than in 1914, 19.6 per cent less than in 1913, 18.1 per cent less than in 1912, and 5.8 per cent less than in 1911.

Railroad Gross and Net Earnings for March.

THE "Commercial and Financial Chronicle" has issued its monthly statement covering railroad gross and net earnings for March. These figures in general, show that the total of the gross runs well behind that for the corresponding month of last year, while the net records a slight improvement, due to a marked contraction in the expense accounts. While a saving in expenses, in some instances, might be considered a gratifying feature, in the present instance it is undoubtedly the result of the urgency of the situation which obliges railroad managers to practice extreme economy, and to defer until a more propitious time, all repair and renewal work that can be put off without jeopardy.

Stated in brief, the total of the gross is $15,194,218 less than in the same month last year, the decrease thus being 5.99 per cent. This is the important fact, of course, namely that the gross revenues of the roads fell off to that extent. This shrinkage was attended by a curtailment of the expense accounts in even larger sum, namely in amount of $16,194,568, thus producing a gain in net of $1,000,350 or 1.48 per cent.

March (481 Roads)-	1915	1914	Inc. (+) or Dec. (-). Amount	%
Miles of road	246,848	243,598	+$3,250	1.33
Gross earnings .	$238,157,881	$253,352,099	-$15,194,218	5.99
Operating expenses .	169,705,449	185,900,017	-16,194,568	8.71
Net earnings	$68,452,432	$67,452,082	+$1,000,350	1.48

As emphasizing the unsatisfactory character of the exhibit, it should be noted that comparisons are made with a month of last year in which the results were far from satisfactory. In other words, in March, 1913, earnings were very unfavorably affected by the great floods which occurred in the middle and middle western states, in the closing week of the month. A better idea of what the results for March really mean, may be procured from the following table, also prepared by the "Chronicle," which shows increases and decreases in gross and net earnings for a series of twenty years.

Year	Gross Inc.+, Dec.-	Net Inc.+, Dec.-
1896......	+$1,172,644	—$46,839
1897......	+869,474	+1,424,786
1898......	+8,607,153	+3,788,044
1899......	+4,532,300	+1,704,084
1900......	+9,627,558	+2,886,403
1901......	+8,654,153	+3,877,243
1902......	+4,346,471	+562,836
1903......	+14,667,126	+4,559,843
1904......	+287,426	—3,662,363
1905......	+10,230,303	+5,223,825
1906......	+12,977,479	+5,036,842
1907......	+12,980,393	+63,814
1908......	—21,531,681	—6,543,631
1909......	+22,190,078	+14,303,842
1910......	+32,887,440	+8,664,106
1911......	—11,264,790	—9,148,129
1912......	+12,955,678	+848,494
1913......	+10,595,839	—4,275,145
1914......	+660,166	+3,104,528
1915......	15,194,218	+1,000,350

Gross Earnings for April.

THE "Chronicle" has also issued its preliminary statement of gross earnings for the month of April, and while these are decidedly unfavorable in character, they contain one or two features which at least encourage the hope that when the final results are available, covering the whole railroad system of the country, the showing may not be as bad as in recent months. The hard fact remains, however, that the loss to the roads, as a whole, as represented in this early statement, reaches $5,392,824 or 8.05 per cent, although it should not be overlooked that approximately $3,000,000 of this amount is represented by the Canadian roads. The following table shows all the changes for the separate roads for amounts in excess of $30,000, whether increases or decreases:

Principal Changes in Gross Earnings in April.

	Increases.
Missouri Kansas & Texas	$269,277
Chesapeake & Ohio	250,320
Buffalo Roch & Pittsburgh	97,693
Western Maryland	83,488
Wabash	73,938
Colorado & Southern	52,982
Yazoo & Miss Valley	48,492
Chicago & Alton	36,042
Minneapolis & St Louis	30,626
Chicago Ind & Louisv	30,593
Representing 10 roads in our compilation	$973,451

	Decreases.
Canadian Pacific	$2,267,000
Great Northern	930,377
Southern Railway	632,396
Louisville & Nashville	622,272
Grand Trunk System	370,389
Minneapolis St P & S S M	227,301
Illinois Central	224,607
Mobile & Ohio	189,696
Canadian Northern	181,000
Grand Trunk Pacific	a152,735
St Louis Southwestern	125,000
Chicago Great Western	119,890
Cinc New Orl & Tex Pac	95,646
Denver & Rio Grande	57,600
Vicks Shreve & Pacific	42,369

Duluth So Sh & Atl	37,932
Texas & Pacific	31,401
Representing 17 roads in our compilation	$6,307,710

a These figures are for three weeks only.

Annual Report of the Pennsylvania Company.

THE report of the Pennsylvania Company for the year ended December 31, 1914, shows net earnings of $13,073,770, a decrease of $2,255,943 from the previous year. The income account compares as follows:

	1914.	Decrease.
Operating income	$54,698,326	$11,535,268
Operating expenses	41,624,556	9,279,324
Net revenue	13,073,770	2,255,943
Tax accruals, etc.	3,209,102	*91,047
Railway operating income	9,864,667	2,346,991
Non-operating income	11,028,161	2,022,803
Gross income	20,892,828	4,369,795
Miscellaneous charges	16,164,756	*695,233
Net income	4,728,072	5,065,029

* Increase.

President Samuel Rea, in his remarks to stockholder, says: "The industrial and financial conditions throughout the territory traversed by your lines were probably more disturbed during 1914 than in any other part of the country, due to the fact that upon these lines or served by them are industries producing more than three-fourths of the iron and steel products of the United States. The shipments of iron ore from the upper Lake region, which may be taken as a barometer, show a decrease of 30 per cent in 1914, while the receipts at Lake Erie ports, most of which are directly reached by your lines, show a decrease of 36 per cent as compared with 1913. The depression in general business became more pronounced in the last half of the year; the unsettling influence of the European war was of course a serious factor in the general situation, especially in its effect on finance and foreign trade, but the underlying causes of the unsatisfactory railroad situation, which are quite independent of European political conditions, unfortunately continued to operate as they had before war was threatened, and so far as your lines are concerned, it is to these causes rather than to the war that the poor results for the year may be attributed.

"There was a complete suspension of mining operations for nine months in the southeastern coal fields of Ohio reached by the Cleveland & Pittsburgh Division and during four months in the Cambridge coal fields tributary to your Marietta division. These suspensions were due to new mining legislation in Ohio changing the basis for payment to miners, which created differences between the operators and the miners which have not yet been adjusted in the No. 8 district of southeastern Ohio. The iron and steel industry was very greatly depressed, and consequently the traffic offerings from these sources, which constitute in normal years over 70 per cent of your freight tonnage, were fully 25 per cent below the average.

"To meet these reductions in revenues the expenditures were curtailed in every direction consistent with the preservation of efficient and safe operations, and the necessity for complying with wage arbitration awards and wasted legislation."

The Situation in Texas.

H. C. ASKEW, statistician of twenty-eight railroads of Texas, representing more than 90 per cent of the total mileage, and hauling more than 90 per cent of the total traffic of the state, has compiled a statement which shows that these roads lost $882,620.72 during the first eight months of the present fiscal year. The total gross operating revenue of these lines, for the period covered, was $77,688,502.78, as compared with $79,759,586.02 for the corresponding period of the previous year, a decrease of $2,071,077.24. The operating expense was $59,545,922.42, compared with $62,198,042.20 for the same period in the year previous, a decrease of $2,652,119.78. These figures show that the net operating income for the eight months was $18,142,586.36, compared with a net operating revenue of $17,561,543.82 for the corresponding period of the previous year, an increase of $581,042.54.

Mr. Askew said: "It should be borne in mind that in the deduction from the gross corporate income no allowances are made for additions and betterments to the properties. Such additions and betterments as were made during the period will increase the deficit to just that extent of the improvements and betterments cost. It can also be observed that the recent heavy losses sustained by the railroads due to rains and floods in Texas will also materially increase the cost of operation. Indeed, this is the second season losses have been incurred, one year following the other; some of the roads involved have not recuperated from the flood losses of 1914 before they were called upon to expend money in repairing damage done by 1915 floods."

Freight Movement via the Isthmus of Panama.—The cargo handled through the Canal during the month of March, 635,057 tons, is 98.7 per cent of the through freight hauled over the Panama Railroad during the twelve months ending June 30, 1914, and is about 40,000 tons more than the through freight handled by the railroad during the fiscal year before that. It will be recalled that the Panama Railroad was supposed to have the heaviest traffic per mile of all of the railroads in the world, prior to the opening of the Canal.

The through freight trains of the Panama Railroad are made up of 18 or 20 cars and haul about 350 tons of freight per trip. To have handled the March cargo by rail would have necessitated 1,814 trains, or 58.5 trains on each of the 31 days. This would have meant despatching a through train each way about every 48 minutes; or at any given point, a train would have been passing every 25 minutes.

With the trains averaging 800 feet in length, 1,814 of them would have been 275 miles long, more than enough to form five parallel trains extending from Panama to Colon.

Operating Statistics for 1914

A REVIEW OF THE ANNUAL REPORT OF THP BUREAU OF RAILWAY NEWS AND STATISTICS.

GRADUALLY the annual report of the Bureau of Railway News and Statistics has come to be the most comprehensive review of railway statistics of the United States from original data printed in the country and that for the eleventh year, 1914, is an advance on its predecessors. From cover to cover the report, consisting of some 140 pages, is packed with information on all the salient features of railway operation, not only for the year under review but for the series of years since the Interstate Commerce Commission instituted its system of statistics.

The comprehensive nature of its report for the year ending June 30, 1914, may be judged from the fact that it covers 376,033 miles of track, of which 245,894 were miles of operated line, 27,644 miles of second track, 2,921 miles of third track, 1,922 miles of fourth track, and 97,852 miles of yard track and sidings. Of the single track mileage 11,111 miles were operated under trackage rights. The Bureau estimates the total physical mileage of American railways at 252,000 miles.

In the introductory chapter the Bureau states that the most significant facts presented in the report can be condensed into seven lines, as follows:

	1904	1914
1. Average receipts per passenger mile (cents)	2.006	1.981
2. Average receipts per freight ton mile (cents)	0.780	0.728
3. Ratio of operating expenses and taxes to revenue	70.91%	76.83%
4. Proportion of wages to revenue	41.36%	45.15%
5. Ratio of railway mail pay to revenue	2.25%	1.70%
6. Net capital per mile	$52,099	$63,094
7. Forty-five varieties of state regulation pulling at cross purposes.		

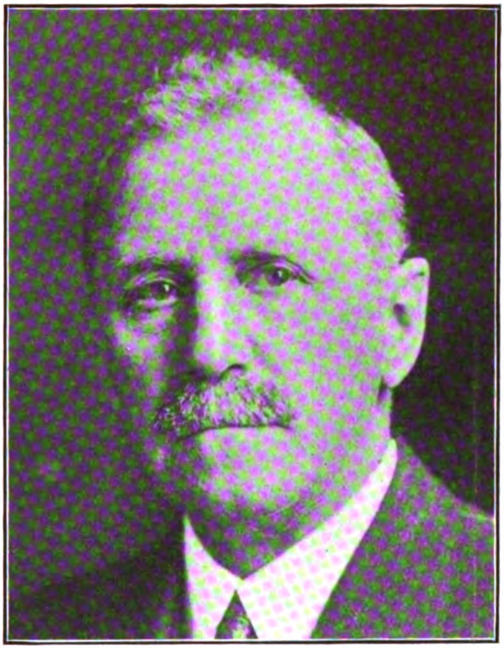
The net result of these causes is summed up in six lines, the effect of the seventh cause being statistically incalculable:

1. Loss by lower average passenger receipts	$ 9,750,000
2. Loss by lower average freight receipts	149,760,000
3. Loss by higher operating ratio	180,000,000
4. Loss by higher average wages	114,000,000
5. Loss by arbitrary reduction mail pay	16,700,000
6. Increased return for larger investment at 5%	187,500,000

Not all of these items are cumulative, but Nos. 1, 2, 5 and 6 are, demonstrating that the change of conditions since 1904 caused a loss to the railways in 1914 of at least $363,000,000, to say nothing of the effect of No. 7, including excess crew laws, etc.

The vital item in the foregoing, so far as 1914 is concerned, is the operating ratio of 76.83 per cent, which for the first time exceeds three quarters of the revenues and consists of 72.23 per cent operating expenses and 4.60 per cent taxes. In the calendar year 1914, for which the income account is given, the operating ratio was slightly higher—76.93—consisting of 72.19 per cent operating expenses and 4.74 per cent taxes.

The Bureau preserves the territorial grouping originally established by the Interstate Commerce Commission, with the following results as to mileage and trackage:



SLASON THOMPSON, DIRECTOR, BUREAU OF RAILWAY NEWS AND STATISTICS.

	Operated mileage	Mileage all tracks
Group I	7,822	13,628
Group II	22,604	50,627
Group III	25,989	48,602
Group IV	15,364	22,722
Group V	31,080	42,728
Group VI	55,826	80,585
Group VII	12,730	18,511
Group VIII	32,775	44,532
Group IX	17,169	21,598
Group X	24,535	32,600
United States	245,894	376,033

In 1914 only 1,582 miles of new line were built in the United States, being the smallest recorded construction since 1896, when ouly 1,428 miles were built. From 1893 to 1914, inclusive, the new construction aggregated 80,592 miles.

The rolling stock reported in 1914 consisted of 64,430 locomotives, 52,004 passenger cars, 2,304,267 freight cars and 133,816 company cars. The average weight of locomotives was 84 tons, against 56.3 tons in 1902 when this item was first reported. In twelve years the aggregate weight of locomotives, without tender, had increased from 2,323,877 tons to 5,413,250 tons, or 133 per cent. During the same period the average capacity of freight cars had increased from 28 tons to 38.9 tons, accounting for an increase of 106.8 per cent in aggregate capacity. It is this increase in the weight of locomotives and capacity of cars that enables the railways of the United States to handle the enormous traffic they do at unreasonably low rates.

The Bureau makes the following estimate of the cost of the above equipment:

COST OF RAILWAY EQUIPMENT.
(245,894 MILES REPRESENTED).

64,430	Locomotives @ $16,000.....	$1,030,880,000
11,650	Steel Pass. cars @ $12,000..	139,800,000
40,354	Wooden Pass. cars @ $6,500.	262,301,000
2,304,267	Freight cars @ $900........	2,073,840,300
133,816	Company's cars @ $500.....	66,908,000
	Total cost of equipment...........	$3,573,729,300

How the passenger equipment is being transformed steadily and rapidly from wood to steel is shown by the following table:

	Steel	Steel Under-frame	Wooden
January 1, 1915......	12,555	5,535	44,263
January 1, 1914......	9,492	4,608	44,560
January 1, 1913......	7,271	3,296	46,926
January 1, 1912......	5,347	2,399	48,126
January 1, 1911......	3,133	1,636	50,201
January 1, 1910......	1,117	1,098	......
January 1, 1909......	629	673	......
Increase 1914 over 1909	11,926	4,862	......

For comparative purposes the report furnishes, for the first time, a summary showing the railway rolling stock of the principal foreign countries, as follows:

SUMMARY SHOWING THE NUMBER OF LOCOMOTIVES, PASSENGER CARS AND FREIGHT CARS OF THE PRINCIPAL COUNTRIES OF THE WORLD.

		CARS	
	Locomotives	Passenger Service	Freight Service
United Kingdom	22,998	72,888	780,524
Germany	28,788	79,529	650,474
France	14,087	32,847	391,192
Russia	20,244	22,369	445,014
Austria	7,494	14,761	148,564
Hungary	4,219	9,142	99,285
Italy	3,744	8,647	69,427
Spain	2,533	6,189	50,109
Belgium	4,288	7,886	87,359
Netherlands	1,186	3,056	21,737
Denmark	629	1,606	9,664
Sweden	1,952	3,600	47,267
Norway	404	788	17,833
Switzerland	1,594	4,879	18,344
Roumania	821	1,782	21,279
Bulgaria	212	335	4,625
Servia	87	247	3,118
Canada	5,119	5,696	182,221
British India	7,612	21,985	157,096
Australia	3,036	4,867	66,096
New Zealand	513	1,282	19,515
British South Africa.	1,421	2,288	23,344
Argentina	2,781	2,294	50,612
Japan	2,499	6,453	42,705
Total twenty - four Countries	138,261	313,416	3,407,404
United States	64,430	52,004	2,304,267

In studying this table the reader should remember that American locomotives and freight cars severally have from two to three times the capacity of European rolling stock.

The facts in regard to employes and their compensation may be summarized as follows:

EMPLOYEES AND THEIR COMPENSATION.

Number (245,894 miles represented)...	1,698,818
Per 100 miles of line	691.1
Compensation	$1,373,069,811
Average pay per day	$2.54
Per cent of gross revenues	45.1

The number employed on June 30, 1914, showed a reduction of 115,220 from June 30, 1913, with a decrease of only $350,843 in compensation. The average compensation of $2.54 per day is the highest on record and marks an advance of over 22 per cent since 1905, when the Bureau first compiled the information.

The proportion of compensation to gross earnings of 45.14 per cent also marks a new high record.

Where American railways pay their employes an average of nearly $810 per year, German employes, who are the highest paid railway labor in Europe, receive an average of only $404. Tables are given which show that the average daily pay of "other trainmen," the most numerous class engaged in the transportation service, has increased 62 per cent over the average of 1892-1899; "other shopmen," 38.6 per cent; "other trackmen," 34.5 per cent, and "other employes and laborers," 33.4 per cent. These four classes aggregate nearly 47 per cent of the total pay roll.

By capitalizing the rental paid by the operating roads for leased roads the Bureau arrives at the following statement of the capitalization of the 245,894 miles reporting to it:

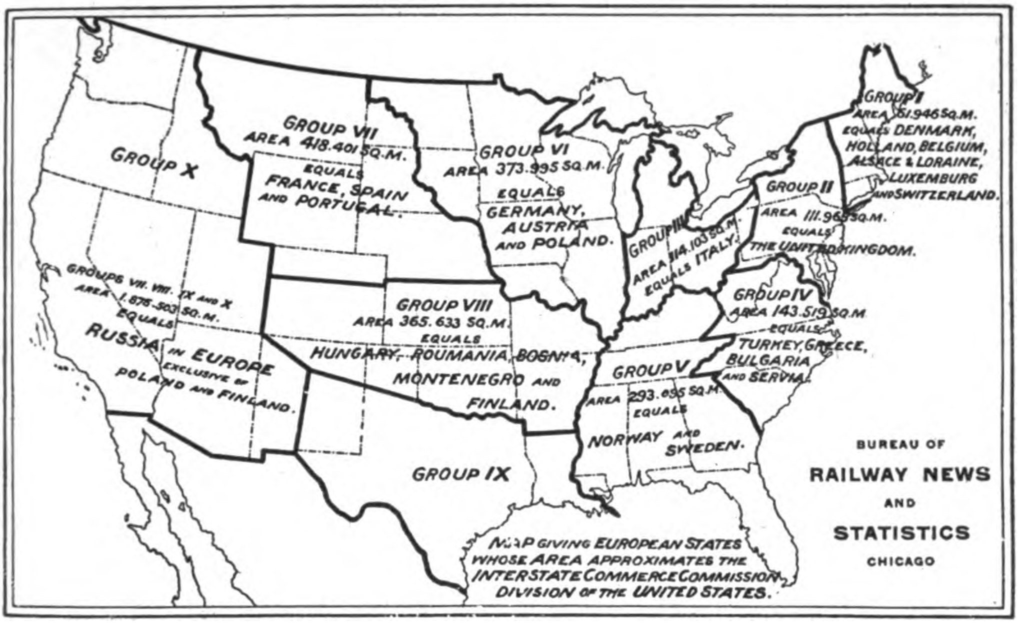
SUMMARY SHOWING CAPITALIZATION OF 443 COMPANIES OPERATING 245,894 MILES OF LINE FOR 1914.

Capital Stock	$7,258,169,015	
Funded Debt	10,259,636,957	
Receivers' Certificates .	54,792,163	
Total 203,303 miles Owned		$17,572,598,135
Rental 42,864 miles, $123,896,917 at 4½%		2,753,264,000
Total 245,894 miles operated		$20,325,862,135
Deductions for Railway Stock Owned	$2,817,861,913	
Deduction for Funded Debt Owned	1,993,534,254	4,811,396,167
Net Capitalization, 1914		$15,514,465,968
Net Capitalization per Mile Operated		63,094
Net Capitalization per Mile of track (376,033 miles)		41,253

In 1913 the Interstate Commerce Commission reported the net capitalization of Class I and II roads (232,765 miles represented) at $15,330,131,446, or $65,861 per mile. These figures may be compared with the following given for the railways of Europe:

CAPITALIZATION OF EUROPEAN RAILWAYS.

Year	Country Europe	Miles Line	Capital or Cost of Construction	Per Mile
1912	United Kingdom.	23,441	$6,501,272,332	$277,348
1912	German Empire..	37,665	4,392,651,229	116,662
1910	Russian Empire*	41,622	3,508,675,945	84,299
1911	France	25,194	3,720,480,021	148,625
1912	Austria	14,185	1,724,079,152	121,542
1912	Hungary	13,303	949,581,820	71,292
1913	Italy (State) ..	8,439	1,334,928,118	158,185
1909	Spain (State) ..	9,056	729,929,464	89,461
1908	Portugal	1,465	162,385,280	110,830
1911	Sweden	8,629	292,036,920	33,600
1913	Norway	1,913	84,130,007	43,788
1914	Denmark (State)	1,216	76,319,972	62,763
1912	Belgium (State).	2,696	520,777,053	192,770
1910	Netherlands	1,980	163,798,304	82,810
1912	Switzerland	3,014	362,718,808	122,165
1913	Roumania	2,200	198,654,047	90,297
1911	Servia	551	34,882,135	63,307
1912	Bulgaria (State)	1,207	58,836,411	48,660
	Total Europe including Asiatic Russia	197,776	$24,816,237,018	$125,480


GROUP X
GROUP VII
AREA 418.401 SQ.M.
EQUALS
FRANCE, SPAIN
AND PORTUGAL.
GROUP VI
AREA 373.995 SQ.M.
EQUALS
GERMANY,
AUSTRIA
AND POLAND.
GROUP I
AREA 51.946 SQ.M.
EQUALS DENMARK,
HOLLAND, BELGIUM,
ALSACE & LORAINE,
LUXEMBURG
AND SWITZERLAND.
GROUP II
AREA 111.965 SQ.M.
EQUALS
THE UNITED KINGDOM.
GROUP III
AREA 114.103 SQ.M.
EQUALS ITALY.
GROUPS VII. VIII. IX AND X
AREA 1.875.303 SQ.M.
EQUALS
RUSSIA IN EUROPE
EXCLUSIVE OF
POLAND AND FINLAND.
GROUP VIII
AREA 365.633 SQ.M.
EQUALS
HUNGARY, ROUMANIA, BOSNIA,
MONTENEGRO AND
FINLAND.
GROUP IV
AREA 143.519 SQ.M
EQUALS
TURKEY, GREECE,
BULGARIA
AND SERVIA.
GROUP V
AREA 293.695 SQ.M.
EQUALS
NORWAY AND
SWEDEN.
GROUP IX
MAP GIVING EUROPEAN STATES
WHOSE AREA APPROXIMATES THE
INTERSTATE COMMERCE COMMISSION
DIVISION OF THE UNITED STATES.
BUREAU OF
RAILWAY NEWS
AND
STATISTICS
CHICAGO

The report states that "under government ownership the capital cost of German railways has increased over $20,000 per mile in 21 years and the capitalization of the Japanese railways has more than doubled since they were acquired by the State in 1908.

By consolidating its own reports with data supplied by the official report for 1913, the Bureau presents the following statement of cost of road and equipment for the year ending June 30, 1914, (245,984 miles represented):

Investment in road (203,030 miles owned)	$11,083,420,834
Investment in equipment	2,882,347,828
Investment undistributed	70,256,729
Total investment reported	$14,036,025,391
Non-operating roads (36,806 miles)*	2,798,718,222
Net working assets*	1,171,215,067
Total investment (245,984 miles operated)	$18,005,958,680
Less accrued depreciation*	327,846,509
	$17,678,112,171

*Amounts for these items taken from official report for 1913.

When to the above total is added the cost of the unreported mileage and the appreciation of railway property in all sections of the country, especially at terminals, during the past eighty years, the Bureau finds justification for placing the present value of all American railway property in 1914 at "not far short of $22,000,000,000." In this connection it presents the following statement of State valuations:

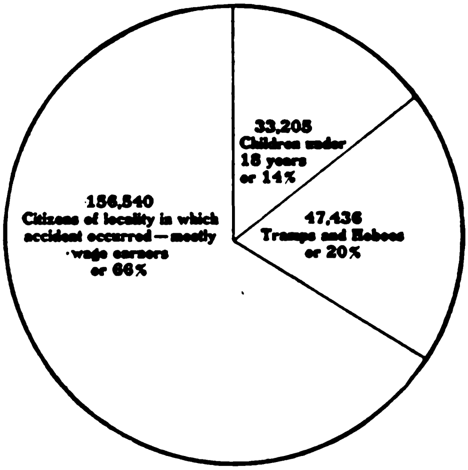
SUMMARY OF STATE VALUATIONS.

Steam Railroads of	Cost of Reproduction	Present Value	Capitalization
Washington (1905).	$194,057,240	$175,797,025	$161,582,000
South Dakota (1908).	106,494,503	91,605,132	109,444,600
Minnesota (1907).	360,961,548	309,706,514	300,027,676
Wisconsin (1909).	296,803,322	240,718,711	225,000,000
Nebraska (1911).	327,190,820	279,169,253	*263,170,000
New Jersey (1911).	374,760,425	285,016,934	*333,568,000
Total	$1,660,267,858	$1,382,013,569	$1,392,792,276

*Commercial valuation in 1904, Census Bulletin 21.

All these valuations, except New Jersey, were admittedly made without taking into account the value of the plant as a going concern, its organization and business connections, etc.

The Bureau states that there were 456,231 shareholders of the 443 companies reporting to it in 1914, an increase of 49,916 over the number reporting for practically the same roads in 1913. It is estimated that the total number of shareholders on all American roads "cannot fall far short of 565,000."



CLASSIFICATION OF TRESPASSING CASUALTIES DURING THE PAST TWENTY-FIVE YEARS. TOTAL KILLED 237,181.

The public service, or traffic statistics, of the railways for 1914 are summed up in the following figures:

BALTIC
POLAND

Network of Railways in Eastern Frontier of Prussia. Capital Cost per Mile $118,610.

Passengers carried	1,032,086,000
Passengers carried one mile	35,129,269,000
Passengers carried one mile per mile of line	142,860
Mileage revenue passenger trains	594,510,000
Average passengers in train	59.2
Average journey per passenger	34.0 Mi.
Passenger car miles	3,369,781,000
Average passenger per car	10.42
Number tons freight carried	1,934,872,000
Tons carried one mile	288,746,432,000
Tons carried one mile per mile of line	1,174,243
Mileage of revenue freight trains	599,981,000
Average tons in trains	481
Typical haul—miles	149
Total revenue train mileage	1,228,273,000
Total mileage freight cars	20,830,297,000
Average freight car miles per day (1913)	25.4
Average tons per car	13.86
Total locomotive miles	1,651,247,000

Between 1888 and 1914 the passenger mileage increased 247 per cent, where the passenger revenue increased only 193 per cent, and the freight ton mileage increased 371 per cent, where the freight revenue increased only 243 per cent. These figures bear convincing testimony to the enormous sum remitted to passengers and shippers by the reduction in average fares and rates since 1888.

The figures of railway amil revenues convict the Government of deliberately underpaying the railways from $15,000,000 to $30,000,000 a year. Between 1904 and 1914 railway mail revenues only increased 24.7 per cent, and meanwhile the postal revenues increased over 100 per cent. "If mail pay had increased relatively to service, as measured by postal revenues, the railway earnings from mail in 1914 would have been over $88,000,000, or $33,000,000 more than they were."

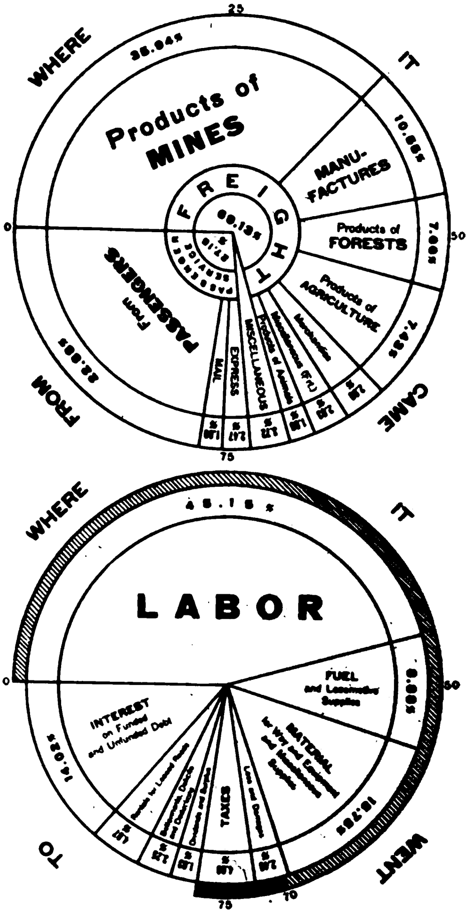
For the first time in ten years railway revenues from express show a decline, being $75,320,532 against $78,536,196 in 1913.

The Bureau employs the income account to demonstrate the misleading nature of official statistics regarding dividends. In 1914 the operating revenues of the railways consisted of:

Revenue from passengers	$695,870,023
" " freight	2,102,314,730
" " mail	54,892,500
" " express	75,320,532
Other revenues from operations	112,895,796
Total revenues from operation	$3,041,293,581

This $3,041,293,581 is claimed to be the only sum which the railways derive from their operation as common carriers, subject to Federal and State regulation, and here is the way it is disposed of:

		Per cent of revenues
Pay of employees	$1,373,069,811	45.14
Fuel for locomotives	243,524,752	8.01
Oil, water and supplies for locomotives	25,813,544	.85
Loss injuries and damages	75,324,314	2.48
Material, supplies and miscellaneous expenses	479,022,451	15.75
Total operating expenses	$2,196,754,472	72.23



The shaded circle shows 76.83% Operating Expenses and Taxes.
The Black Belt beyond 70% is the Danger Zone.

The Sources of Receipt and the Methods of Distribution of the Railway Dollar During 1914.

Taxes	139,959,071	4.60
Rentals of leased roads	123,896,917	4.07
Interest on funded and unfunded debt	426,355,689	14.02
Deficit of weak companies	57,617,179	1.90
Betterments and reserves	39,245,917	1.29
Dividends and surplus	55,618,979	1.83
Net deficit outside operations	1,845,357	.06
Gross operating revenues	$3,041,293,581	100.00

Presented in this form and excluding all income from intercorporate investments, there is evidently nothing left out of which dividends can be declared except the $55,618,979 and such share of the rentals paid to the non-operating roads as is not devoted to their fixed charges.

The Interstate Commerce Commission supplies the information that $64,561,479 of the sum so paid to leased roads went to "interest and similar deductions" and $37,227,212 to "dividends declared from current income." So following this process of distribution it seems that $92,846,191 was the sum total available for dividends out of the $3,041,293,581 received from fares, rates, mail, express and the miscellaneous sources of transportation revenue.

Adding the three items of interest, rentals and dividends together yields a total of $605,871,585 as the sum apparently available to meet interest and dividends on a net capitalization of $15,514,465,968. This would be less than four per cent and less than three per cent on a conservative valuation of all American railways.

The net earnings from operation in 1914, after deducting taxes, were $704,580,038 against $827,834,914 in 1913—a decrease of $123,254,876. The returns for the calendar year show a further reduction of the net operating income to $687,621,090, which is the lowest level since 1908 and yields a lower net per mile of line than in that depressed year, the figures being—1914, $2,703; 1908, $2,869, and a mile of line represented an investment of $63,094 in 1914, against only $60,260 in 1908.

Since railway taxes have increased 407 per cent, having risen from $179 per mile to $569 in 1914. Where they were only 2.86 per cent of revenues in 1889 they were 4.60 per cent in 1914. The highest taxes per mile are paid in New Jersey, $3,187, and the lowest in Texas, $225 per mile.

Payments on account of "Loss and Damages" and "Injuries to Persons" continue to grow out of all proportion to other railway expenses. Between 1889 and 1914 the former increased 613 per cent and the latter 359 per cent. In 1914 they amounted to $75,324,514 and absorbed over 2.47 per cent of gross revenues.

The chapter on accidents shows that 1914 was pre-eminently a year of comparative freedom from fatal railway accidents, as the result of the recession in freight traffic and the widespread "Safety First" movement. Three hundred and fifteen roads, operating 113,333 miles of line, and carrying 15,304,120,000 passengers one mile, went through the year without a single fatality to a passenger in a train accident. On all roads there were only 71 passengers killed in train accidents and only one killed to 494,778,436 passengers carried one mile.

The figures prove that the hazard to trainmen is decreasing and that railway travel in the United States compares favorably, relatively to density of traffic, with conditions in Europe.

The concluding pages of the report are given up to the essential features of statistics of foreign railways, derived from the latest official sources.

The foregoing is the merest skeleton of a report of which it may be said that it is as condensed as it is exhaustive, while the text illuminates the tables briefly and with admirable fairness. "The comments," as remarked by a student of the subject, "add a human interest which attracts the layman to an essentially important subject which he would probably shy at."

Practical Methods in Accident Prevention

By Geo. Bradshaw, Safety Engineer, Grand Trunk Railway System, Grand Trunk Pacific Railway.

SAFETY and Efficiency are railway twins and none can point to a more indulgent parent. But these twins have a wonderful capacity for wanting new and better things and there has always been a vigorous effort to meet all their real needs. In spite of these efforts, however, when we come to study the injury record among employes, one fact stands before us like a mountain on a plain and that is the magnitude of the task that yet awaits us. I shall not charge your minds with statistics. We all know that the record is sprinkled with numbers running into five and six figures. The sum total of our achievement is a record of one employe injured for about every eleven and one killed for about every five hundred. In the operation of trains reports for 1913 show one trainman out of 197 killed and one out of 8 injured, enginemen and firemen being included in this classification as trainmen. If it be said that heavier equipment and higher speed increase the hazard rate, we are confronted by the fact that during the five years ending with 1909 one trainman was killed for every 130 employed, while in the corresponding period closing with 1914, one was killed for every 188 employed.

These considerations bring us face to face with one proposition. What are we going to do about it? Are we, whose achievements in other respects are conceded to be in advance of those of other countries, going to remain in this one particular where life and limb are at stake behind all others? We have come to the point where we've got to say, "We will stop this"; or "We can't stop it." We have allowed this thing to go on, not through indifference, but largely because the idea has prevailed that if we made physical conditions reasonably safe and introduced approved methods of operation, employes would know enough and care enough always to take the safe course in the performance of their routine duties without any particular education directed solely to safety. We are now finding that this idea is wrong. We are coming to see that the employe is the real seat of the trouble and that we must improve the human machine. That's the law and the gospel of the safety first movement. I shall not undertake to explain in detail the methods of that movement They have become pretty generally understood. Nor shall I endeavor to prove the soundness of those methods. Gladstone said: "One example is worth a thousand arguments." If you want examples of what the safety movement is doing, go to the Grand Trunk, the North-Western, the Lackawanna, the Norfolk and Western, the Northern Pacific, the Great Northern, the Frisco and the Government Railways of Canada. I mention these roads particularly because I happen to have their recent reports. The Grand Trunk Pacific operating 3,000 miles of line during the first three months of this year, had only twenty employes seriously enough injured to lose more than ten days' time. Not one employe was killed and not one lost a leg, an arm or an eye. On the Grand Trunk Railway in 1914, as compared with 1913, there was a reduction in casualties in the various classes of persons of from 15.5 to 37.6 per cent.

I wish I had time to read you reports from employe members of Grand Trunk Safety Committees, showing their active interest in safety work. Let me say here that drones are not allowed to remain on these committees. If a man fails to show proper interest, his place is filled by another. Every member of every committee is required to make a monthly report showing what he has personally done in correcting unsafe conditions and practices. A printed blank (Form 827), with instructions, is provided for this purpose. So far as I am aware, the Grand Trunk and one other road which adopted the practice from the Grand Trunk, are the only ones requiring a report of this nature. We have found the plan to work well and commend it to your consideration.

Permit me to mention a few instances that are characteristic of many showing the effective work being done on the Grand Trunk by members of safety committees. An engineman makes it a business to visit on his own time the owners of industries in the territory where he works and get them to keep material and rubbish a safe distance from tracks. A yardman found that a pole had been erected too close to a track. He called up the electric light, the street car, the telegraph and telephone companies and they all told him they didn't own the pole. He then notified every one of them that since nobody owned that pole he was going to chop it down. Result: the owner got busy and moved the pole. On a certain division there was trouble with signal oil. A member of the safety committe (an engineman) took it up with the committee and the members collected all the information they could. On request a representative of the signal oil company made an investigation and afterwards met with the committee and gave his views. Analysis showed presence of water in the oil and this conclusion was reached that the water had gotten into the oil while stored in tanks preparatory to use. Other troubles were found and as a result of the committee's activity, the following facts were learned and all concerned over the system given the benefit of the information:

1. A very small quantity of water in signal oil may cause trouble.

2. Storage tanks should be cleaned at least once every six months. Kerosene and a cloth should be employed for this purpose. Never use waste for cleaning such tanks as pieces are sure to cling to the sides of tanks and may eventually get into lamps and cause trouble.

3. Never store Galena Signal Oil in galvanized tanks. Use steel or tin.

There are on the Grand Trunk about four hundred employes on safety committees. These men are in effect assistant foremen, trainmasters and superintendents in matters pertaining to safety. They are given a measure of authority in directing employes as to safe methods of performing routine duties, and they have a moral standing which makes effective any suggestion or instruction given.

I would like to make two suggestions to those who may be considering the inauguration of the safety movement.

First. Make up your mind that it's the right thing to do and go into it in earnest. If you can't do this, results are not likely to be very noticeable.

Second. Put a capable man in charge, have him devote his entire time to the work and report to the highest operating officer. Make his position one of respect and give him support. Bear in mind he must get results largely through co-operation and that men are not likely to co-operate effectively with one for whose influence they have little respect. In other words, you must make this work a part of the main show and put on a good performance if you expect the boys in the ranks—and they are the ones we must reach—to support it. They have little use for a side-show with a Punch and Judy act.

Records show that violation of rules and instructions has become a prolific source of casualties and the interest of safety demands prompt and vigorous action to remove this cause. The report of the Interstate Commerce Commission for 1913 on train accidents emphasiszes this point. It is too lengthy to quote in this connection, but I commend it to your consideration. The Commission takes the view that greater official supervision is needed to secure compliance with rules. The trouble is really deeper seated. It is found in an attitude of mind, too prevalent among both officers and employes, that violation of certain rules is of little consequence so long as nothing happens. We may try to make ourselves believe that this is not true, but it is true just the same. We are all human and this is only one of our imperfections the results of which are made prominent by the nature of the work in which we are engaged. But this is fortunately an imperfection which, if we recognize it and set about to do so, can be largely overcome. Running an order board, failure to obey train order, occupying without authority main track upon time of superior train, leaving switch open—these and a long list of other derelictions are considered serious on all well managed roads whether attended by accident or not. But how much attention do we pay to it, where there is no accident, when conductors and enginemen fail to compare orders, when a car is left foul, an operator fails to keep hand signals in proper condition for immediate use, when a shopman operates a machine without safety device provided for the purpose, an engineman starts an engine without the prescribed signals, or a trainman goes between moving cars.

It is sometimes claimed by employes that it is impossible to comply with the book of rules and get trains over the road. There is much chaff and just a little truth in this contention. A few rules found in the standard code and some special instructions issued are known to be incompatible with the demands of traffic. In such cases, either the rule becomes a dead letter or a construction is placed which is practical, although inconsistent, with the wording. To the extent this condition exists is the respect of every one for the sanctity of rules shaken and weakened. It would be better to face the situation squarely and modify or eliminate rules wherever necessary to harmonize with reasonable requirements of the service. When a serious accident occurs, it is but human nature for those in charge to present the facts in a light as favorable to themselves as possible. As a result, consciously or unconsciously, in their investigation and report they are apt to present a one-sided view of the matter. If the circumstances are not covered by the book of rules, they refer to special instructions in the time-table or dig up some bulletin or resurrect a piece of safety literature and in goes a long report to headquarters which being interpreted means that somebody violated somebody's instructions and something happened. The poor devil who gets caught is sent to the doctor, the time keeper or the undertaker, we charge up another case of man failure and try to forget it. Too often in such cases, especially where train operation is not involved, the investigation does not strike the right spot and does not go far enough. The vital consideration in every such case is not what happened at that particular time—that is apparent without investigation—but in what manner and to what extent has the rule or instruction been complied with prior to the occurrence in question. If there has been any considerable violation, either with the knowledge of the man in charge or under circumstances that he should have knowledge, then he and perhaps others above him may be at fault. Yet it's this important fact that often receives too little consideration, and the officer who may himself be chargeable is allowed to begin and end the investigation. Human nature has not yet attained that degree of perfection where any of us can be trusted to judge our own cause.

The report of ordinary accidents, where the injury is not serious and train operation not involved, as made on the blank form, is a most useful, but sadly neglected document. Introduced originally for use chiefly by the legal department in determining liability, this report has failed to receive from operating officers the attention its importance deserves. It is too often passed upon only by the office boy or file clerk. A wonderful instrument indeed is this ordinary accident report—a real barometer of operating methods and conditions recording failure and its lessons, regrets and their resolutions, mistakes and their tragedies. Sometimes it gives as much information as a boarding house mistress at a sewing party; but more often as little as a New York millionaire before the tax commissioner. Yet, this report, when properly studied, yields a fund of information to be dervied from no other source. Men in immediate charge of employes, who are the ones first called upon to make out accident reports, often show lack of appreciation of the true purpose of such reports, or perhaps it might be more accurate to say that we have not used such reports for their true purpose. The dominating idea in the preparation of the blank forms for these reports has been to show the consequences, and not the causes, of the accident. It would be time well spent to instruct foremen, yardmasters and others as to the true purpose of an acicdent report and as to the kind of information that is of real value. You have perhaps heard of that B. & B. foreman who happened to have one of his men fall into the river. In answering the question, "What does the injured man say about the accident?" the foreman wrote, "He says it was a damned good thing he could swim."

Fortunately in safety work all who participate serve at the same time both their duty and their interest. Employes are interested, because they are the ones whose bodies are being placed on the operating tables and the cooling boards. Officers are interested, because men can do more and better work under safe conditions and practices. The companies are interested both for humane and economic reasons. In 1913, the railways of this country paid 2.26 per cent of their earnings on account of injuries to persons and damage to property. All those millions represented absolute waste, and in this day of small margin between income and outgo, the extent to which railways succeed or fail in accident prevention is going to have a lot to do with the number of receiverships in the next few years. The doctrine of fellow servant, contributory negligence and assumption of risk is doomed and dying. Already there are workmen's compensation laws in twenty-four States, and while railways, in interstate cases, cannot be compelled to come under those laws, if they elect to abide by Federal statutes, they jump out of the fire into the frying pan.

The progress of railways in material affairs has been the wonder, the admiration and the inspiration of modern times. Their future achievements will likely be more within the realm of administration, policies and methods. And in the front rank of approved ideas will stand the safety first movement. We little realize its possibilities to-day. The idea is so simple that we have not yet come fully to apppreciate it

Charles Lamb tells the story of a Chinaman whose house was accidentally burned. In clearing away the ruins just after the fire, one of the men, in taking hold of the body of a pig which had been caught and roasted under the house had his fingers burned by the hot flesh of the pig which adhered to them. Thrusting his fingers into his mouth to cool them, this man—the first one in all that country—got a taste of roast pig. It was delicious and he called his companions and they tasted. The news spread about and some of the neighbors got a taste and everybody liked it. The result was that people began to drive their porkers under the houses and burn the houses down to get roast pig. This method went on for four thousand years when some great thinker among them suggested that they use ovens to roast pigs in and let the houses stand. But the idea was so simple that it was only after much effort and many years that it came to be adopted.

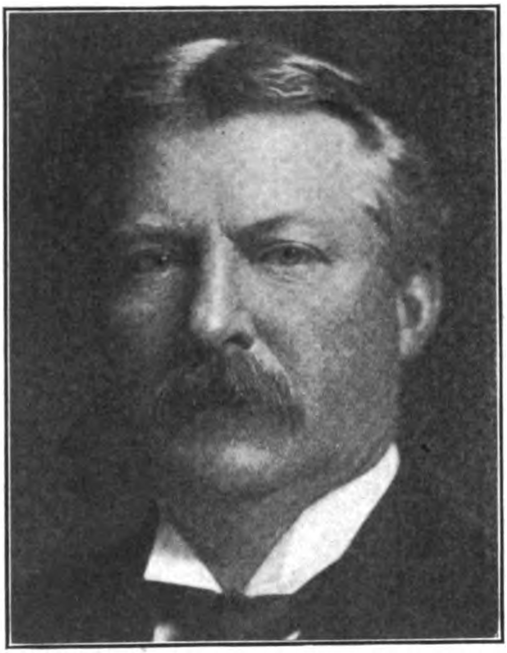
The safety movement is now fighting the battle that every great idea has fought and won against the hosts of Custom and Conservatism. The battle fought by the principle of train dispatching when first introduced by the Erie Railroad back in the fifties which caused an avalanche of protest and resulted even in the resignation of some of the men rather than run trains on the time of each other by telegraph orders. The battle fought by the air brake when a certain financier told George Westinghouse that he had no time to talk with a fool who thought he could stop a train with air. The battle fought by the first railway bridge across the Mississippi River, built at Rock Island, Illinois, which the Judge of a Federal District Court in Iowa in 1856, ordered removed, because, if allowed to remain, other bridges might be built in such numbers as seriously to interfere with navigation which judgment was reversed by the Supreme Court of the United States by a bare majority of the judges.

Every great thought is a divine force against which no power on earth can prevail and the safety movement is a great thought.

The Case for the Railroads in the Carrying of Mails

By Ralph Peters, President of the Long Island Railroad.

Note: The following paragraphs are taken from an article which appeared in "The Nation's Business," the official publication of the Chamber of Commerce of the United States of America.



Ralph Peters, President of the Long Island Railroad Company and Chairman of the Committee on Railway Mail Pay.

In seeking a reform of the methods whereby the Government pays for the railway mail service, the railroads are merely asking to have the methods of payment systematized upon a business-like basis. This, as we understand it, means that the Government shall pay fairly for all the mail carried and for all the special services and facilities furnished to the Post Office Department.

Under the practices which now prevail, a large part of the mail, and especially of the parcel post, is being carried without compensation, and the railroads are obliged to supply the Post Office Department with many valuable special facilities and to perform numerous supplementary services, quite apart from the field of railroad transportation, without corresponding supplementary pay.

The advent of the parcel post has made this situation decidedly serious. The parcel post has had a tremendous growth. Yet despite such tremendous increment in mail traffic, the Post Office Department has adhered to the old practice of weighing the mails and readjusting the pay of the railroads only at four-year intervals, thus obtaining the transportation of a considerable volume of mail during the intervening years, without payment.

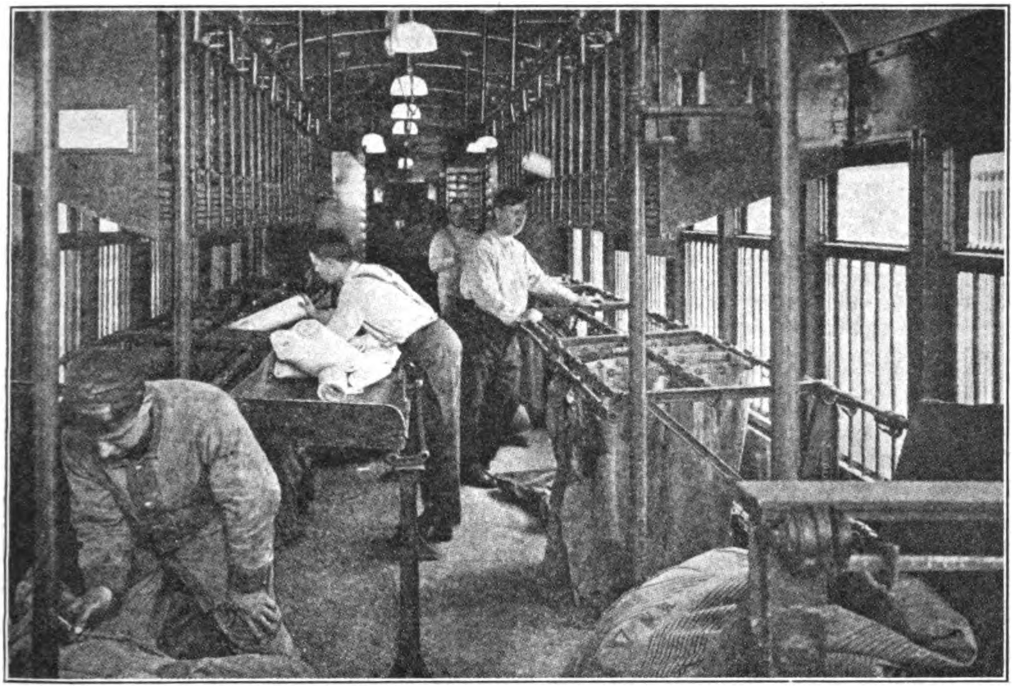
These "quadrennial weighings" are not made simultaneously. The country is divided into four sections, and a weighing is held in one of these sections each spring. Since the inauguration of the parcel post, the mails have been weighed in only two out of four sections. In the other two sections the parcel post is being carried without pay, save for certain arbitrary allowances, conferring increases averaging three to four per cent in mail pay, which Congress authorized the Postmaster General to make, in his discretion.

These arbitrary allowances have been much more than offset by the increases in the weight limits and scope of the parcel post which have since been made without any accompanying compensation to the railroads handling the increased traffic.

For instance, in the territory embracing all the States from New York to Virginia, inclusive, and reaching as far west as Pittsburgh and Buffalo, the heaviest mail traffic in the country is handled. The mails were weighed in this section in the spring of 1913. The parcel post had then only been established a few weeks and the original weight limit of 11 pounds was in effect. On July 1, 1913, the railroads in this section received an adjustment in pay to correspond with the results of that weighing.

Six weeks after this adjustment of pay went into effect, the Postmaster General increased the weight limit of the parcel post to 20 pounds per package, and reduced the postage rates. On January 1, 1914, the weight limit was again advanced to 50 pounds in the first and second zones, where the bulk of the traffic is handled. Books and catalogues have been admitted to the parcel post, and an immense mail traffic has been built up in them. Senator Bristow's Parcel Post Committee recently reported to Congress that one great mail-order house is saving $1,000,000 a year on its catalogues, alone, through shipping them by parcel post. The Post Office Department has also used every endeavor to expand the parcel post as a commercial freight service, and has even acted as intermediary, for the sale and distribution of farm products through this channel.

For all the great increases in the volume of the parcel post that has been effected by these various means since July 1, 1913, the railroads in the territory described have not received one cent of



Interior of a 70-ft. All Steel Railway Post Office Car. While the Post Office Department Pays for the Space Used in this Car for Sorting the Mail, the Equipment, Consisting of the Steel Racks, the Overhead Boxes, the Cases and the Pigeon Holes, are all Furnished by the Railroad. The Paying Load in these Cars Averages Only Three Tons of Mail, Although the Car Could Easily Contain Twenty Tons, if the Space was Not Occupied by the Fixtures.

compensation, nor will they, under the "quadrennial weighing" system, until July 1, 1917.

It is a conservative estimate that, taking the country as a whole, the railroads to-day are carrying fully 50 per cent of the parcel post without payment; and this represents a commercial freight and express service worth millions of dollars per year, which the Government is requiring the railroads to render for nothing.

To remedy this condition, the railroads make the simple request, which we feel must appeal to every business man as reasonable and extremely moderate, to have the mails weighed not less frequently than once a year and the pay of the railroads readjusted with corresponding frequency.

Some of the very small roads, especially in the far West, whose freight business has been almost entirely destroyed by the heavy parcel post, without any compensating increase in pay for mail transportation, take the position that every shipment of mail, or at any rate of the parcel post, should be weighed and paid for specifically.

In addition to carrying the mails, the railroads furnish the Post Office Department with office room in moving trains for the sorting and distribution of the mails in transit. When such space is furnished in fullsized cars, it is paid for, but the law makes no provision for payment for office space when it is furnished in apartments in combination cars. About 4,200 such apartments, ranging in length from 10 to more than 30 feet, have been partitioned off and equipped for the exclusive use of the Post Office Department. It has been estimated that the loss to the railroads through non-payment for these facilities reached nearly $3,700,000 per year.

The practices and regulations of the Post Office Department require the railroads, without additional compensation, to carry the mails, in many cases, between railroad stations and post offices and between railroad stations on different lines. This is a service forming no part of the duty of railroad transportation. The Post Office Department has appraised the value of these "messenger" services at $2,100,000 per year.

These three forms of loss to the railroads, amounted to more than $9,000,000 per year, before the inauguration of the parcel post. The large volume of the pacel post now being carried without compensation has greatly increased the loss, but data are not available by which it is possible to estimate accurately how much.

The Postmaster General wishes to establish what is known as the "space plan" of payment, in which the compensation paid the railroads would be based, not upon the weight of mail carried, but upon the amount of car space authorized by the Post Office Department for use in the mail service. The railroads object to the space plan, and believe it is unfair.

Mail cars, at present, earn a gross return averaging about 19 or 20 cents for each mile they are hauled. This includes compensation for the average weight of mail carried, and also for the room and special facilities furnished for conducting clerical work in the full post office cars. The weight of mail usually hauled, as the service is now conducted by the Post Office Department, is much less than the full capacity of the cars.

Under the space plan of payment, as advocated by the Postmaster General, the Post Office Department would pay the railroads approximately the same rate per car-mile as the light average loads of mail now earn—say 20 cents per mile—but the Department would thereupon appropriate the privilege of utilizing all the remaining space in the cars, without additional payment for the increased weight of mail hauled in it. Such a plan would naturally enable the Department to obtain a largely increased service without any additional pay to the railroads rendering it.

At 20 cents per mile for a car capable of carrying 20 to 25 tons, which is substantially the return that the system of pay advocated by the Postmaster General would yield in the case of "storage" cars,—that is, cars in which no distributing work is done—the Department could obtain the transportation of the parcel post for one cent or less per ton per mile. Most business men are familiar with the fact that this is a low grade freight rate, and utterly inadequate for freight service of the very highest grade, rendered by passenger express trains.

If this system of pay were established, the railroads would be compelled to carry the traffic, as mail instead of freight or express, and at utterly unremunerative rates, while the Government would be engaged in an active competition with the railroads, for commercial freight business, by appropriating the use of the railroads' own facilities. Moreover, the passenger train service would be demoralized by being encumbered with an extensive freight business, a phenomenon which is already taking place with many of the smaller roads whose freight business, being chiefly of light character, has been largely absorbed by the 50-pound parcel post.

The railroads take the position that the service they perform is transporting the mail, not moving the car, and that the measure of service performed is the weight of mail carried. The car is a facility by which the railroads are enabled to perform the service. This facility belongs to them and they are entitled to use it in earning revenues. The space plan of payment deprives them of control over, and use of their facilities and, if so administered as to produce unremunerative rates for service would result in partial confiscation of such facilities.

The plan of payment advocated by the Postmaster General was embodied, before the last Congress, in the measure known as the Moon bill. In addition to establishing the space basis of payment, this bill contained provisions conferring upon the Postmaster General discretionary power to reduce the rates of pay below those named in the bill. Another provision would compel the railroads to perform the service, at the rates so determined, under penalty of $5,000 per day for each refusal.

The railroads' claim of underpayment for the mail service has been sustained by the findings of three independent authorities.

The Joint Congressional Committee on Railway Mail Pay, which reported in August, 1914, after nearly two years of investigation, found the railroads entitled to an increase in compensation, with relief from the messenger services previously referred to.

Incidentally it may be said that the Joint Committee thoroughly investigated the question of the relation between express and mail earnings of the railroads and reached the conclusion that, considering both services in their entirety, the mail service costs the railroads more to perform and yields a lower return than the express service. The earnings of the railroads from mail and express are based on totally different principles and proceed along widely divergent lines. The services themselves, are also materially different. There are instances in which mail pays more than express, and there are also at least as many instances in which the reverse is true.

Dr. Lorenz, of the Interstate Commerce Commission, calculated, in 1913, that the railroads were underpaid for carrying the mails by an amount certainly exceeding $5,000,000 per year, and the data upon which he rested this conclusion related wholly to conditions existing prior to the inauguration of the parcel post.—since which time the loss has vastly increased.

Mr. Louis D. Brandeis, while acting as counsel to the Interstate Commerce Commission in the advance freight rate case, officially reported to the Commission that "the railway mail service is at present unremunerative to the carriers."

So the railroads, while realizing that the subject is an exceedingly technical one, and most difficult to place before the public on its merits, feel that they are well fortified with authority in pressing their case for more equitable treatment in respect to mail transportation.

Our program of reform is a brief one and comprehensible to every business man. We ask for:

1. Annual weighings of the mail and equal frequency of readjustment in pay.

2. Relief from, or payment for, the messenger services.

3. Payment for apartment post office cars on a pro rata basis with the full cars.

Three simple amendments to the existing law will accomplish these results, and obviate all necessity for legislative experiments with the "space plan" of pay.

Progress in Electrification.

FOLLOWING its usual custom, the Westinghouse Electric and Manufacturing Company has recently issued a progress leaflet, in which is outlined the progress made by the company in electric railway apparatus. Among the items included this year are the Philadelphia terminal electrification of the Pennsylvania Railroad, the electrification of the Norfolk & Western Railway Company of the Bluefield Division in Virginia, the recent addition to the New York, New Haven & Hartford road and a large number of other steam railroad electrifications and city surface, elevated and subway lines both at home and abroad.

The Necessity for a National Railroad Organization

By F. S. FORD, AUDITOR, SAN ANTONIO, UVALDE AND GULF RAILROAD.

NOTE: Mr. Ford, in his very interesting article, points out some of the evil effects of unrestricted railway competition and suggests, for a remedy, the formation of a National Railroad Organization, by which these effects may be overcome. In view of the fact that the trend of railway regulation is decidedly against a movement of this character, it is a little difficult to understand how the railroads could provide the remedy as suggested by Mr. Ford. His article will, however, prove of more than ordinary interest to many of our readers.

COMPETITION, senseless competition for one thing is eating the life out of the railroads, both in operating costs and physical improvements. Mileage ticket evils; useless outside agency expenses; advertising expenses and dining car losses have been treated by the writer previously and are all the results of competition and they cost the railroads somewhere between 50 and 100 million dollars per year.

Physical improvements and maintenance it is possible to carry to a point not justified by the railroads' pocket book. It is perfectly easy and natural when business is good and the monthly reports show up black surpluses instead of red deficits to want to make some improvements. For instance, we want to enlarge the shops and install new machinery; build some better buildings somewhere; fill in some trestles; improve terminals; ballast a lot of track; put in heavier rails, etc. So the board passes the small dividend they had in mind and appropriates the money for improvements notwithstanding that for several years past it were far better had the stockholder's money been in a savings bank drawing three per cent.

Why then this expenditure for improvements instead of a dividend, even though a meager one?

Are the proposed improvements expected to increase the revenues, or decrease the expenses, or in other words increase the net revenues; or simply to make the property show off and worth more and so rank along with or ahead of some competitor?

Do improvements always add to the property a value equal to their cost? Do they always increase the net revenues to the extent expected of them and thus make of them a profitable investment? Do they ever?

Earnings expended in improvements and afterwards capitalized become a two-edged saw which cuts both ways, should the investors be deprived of a legitimate return on it, for they might be made still poorer to the extent of the depreciation on the additional improvements, not allowing for the fact that a million dollars spent on improvements don't necessarily make the property worth a million dollars more. It makes it worth just as much more as it will bring if they want to sell it, and what it will bring depends on it as a dividend producer, and is not, necessarily, in proportion to the cost of it at all.

On capital expended for improvements the result or formula therefore becomes: interest forfeitted on the amount expended, plus upkeep and depreciation on the improvements, plus the decrease betwen the cost and the market value. Against this is credited the increased returns or net profits due solely and directly to the improvements, plus the interest on such increase, plus the decrease in upkeep and depreciation, if the improvements effect a decrease, plus the increase between the market value and the cost, if any.

The principle of earning more money in order to spend more money on improvements is questionable economically. Why construct and improve a property beyond a value actually necessary and then expect to earn interest and dividends on it? The answer is, most likely competition. It may be creditable from a philanthropic standpoint, but as a business proposition it is indefensible.

Money spent on improvements to a property is wise or unwise just in proportion as it increases the dividends. Building too far into the future is as indefensible as neglecting the present, since future conditions or eleemnts can not be forecast with sufficient certainty. For example, how do we know there will be a steam railroad ten years hence? See what automobiles and trolley cars have done to railroads in the past ten years. Railroad business is the greatest enterprise in the world now. In ten years hence the automobile will be the greatest and at the same time a healthy and persistent competitor of the railroads.

In ten years hence the railroads will not only be up against the competition due to these causes but the higher costs of transporting what they do carry unless they find ways to decrease these costs, particularly those resulting from senseless competition which are within their power to control through organized co-operation.

Three million automobiles in the United States will decrease passenger revenues 100 million dollars per year, both from passengers carried by them and from less use of the railroads by owners. Will the freight revenue be increased equally considering that money spent for automobiles might otherwise be spent for something else yielding freight revenue for the railroads?

A property capitalized at $40,000 per mile at five per cent, means $2,000 interest per mile per annum, while $20,000 capitalization per mile means $1,000 interest per mile. Then if a property costing $20,000 per mile will yield the same gross income as one costing $40,000 per mile, it can, if necessary, afford to spend $1,000 per mile more on its maintenance and operation for it will still be ahead on its taxes and depreciation. How far will this $1,000 per mile go towards paying all the operating expenses of a railroad? Over ten per cent of it, and that is economics.

To say that a railroad is overcapitalized is not necessarily true because "overcapitalization" is not always the word. Overcapitalization is generally understood to mean fictitious or "watered" values, while a property may have cost all that is claimed, every cent of it, and can prove it and yet it may have cost more than it should, both economically and as a profitable investment.

A railroad that cost $20,000 a mile which earns one per cent dividends is a better investment than one costing $40,000 a mile that earns one per cent dividends because there is less capital involved in a poor investment and the market value therefore greater proportionately.

Put it differently. A railroad costing $20,000 a mile and earning one per cent dividends is worth more as an investment than if it were plastered with an additional debt for improvements and still earned one per cent dividends.

Put it differently. If a railroad costing $20,000 a mile earns any dividend at all, it is better business judgment to continue earning that dividend than plaster on an additional debt and still earn only the same rate dividend or possibly a less one, even though every cent of the debt went into improvements; because not only does the market value become less proportionately, but the investors get saddled with additional debt, the liquidation of which becomes correspondingly more difficult.

Put it differently. Any time you can take what the interest would be on proposed improvements and accomplish the same net revenue without the expenditure of the principal, that is the thing to do, because you save in taxes and depreciation and the burden of the additional debt which eventually has to be liquidated.

Put it differently. If a railroad costing $20,000 a mile earns a dividend, what rate must that dividend be to justify an expenditure for improvements of say 10 per cent of that cost and still earn the same per cent dividend; having in mind the market value before and after the improvements and the increased difficulty of liquidation of the debt? Is any additional expenditure justifiable, ever, that does not increase the dividend rate, unless necessitated to maintain previous dividend rates, having in mind both the per cent of probable dividend decrease and the per cent of debt increase?

Improvements made too far in advance of actual necessity for them may yield profits in the meantime so insufficient that it were better to have suffered the losses occasioned by want of the improvements until necessity compelled them

And yet though railroad properties as they exist to-day fail to yield even a savings bank interest in return, if that result is due in any measure at all to excessive actual plant investment, consider first of all the motives actuating these investments

The standard of railroad building was established and these investments in most part made long before rates per mile had been chopped down by commissions in the face of increased costs of wages and materials with the expectation that not only would net revenues per mile not decrease, but from natural causes would increase. Made from motives the very highest from standpoint of business acumen as well as broadminded high class philanthropy and stand to-day monuments of such motives.

Anybody who has been through the railroad mill for twenty-five years and watched these things done and actually put the figures on the books himself is not a theorist, not usually. During the writer's railroad service with twelve different railroads the only dividend ever paid by any of them during this service was one per cent paid by one of them just one year. To whatever cause this may be due, call it by any name you please, the result remains the same.

For every big problem there is an effective solution and though it is always the most simple and natural one imaginable, it is usually the last one thought of. Railroads can accomplish anything they want to accomplish by organized co-operation and it is, as might be expected, about the only thing they never have tried.

The effect of such an organization by the elimination of senseless competition and adoption of economic reforms would be obvious from the date of its organization as to railroad values, railroad self confidence, and railroad self respect.

Economic Handling of Freight Cars

Note: The following paragraphs are taken from an address delivered by Mr. W. C. Kendall, superintendent of car service, Boston and Maine Railroad, before the April meeting of the New England Railroad Club.

THERE are three distinct units watched by the railroad manager with respect to car matters which we will do well to bear carefully in mind, viz.:

Miles per car per day.
Percentage of empty mileage.
Average lading.

There are lesser units such as "cars on road," "debit or credit balance," etc., which the man on the firing line catches occasionally—but the first named, if satisfactorily handled, take care of the others.

When figures are quoted for "miles per car per day," an explanation should follow. Taken by and large, the figure averages around 25 miles per day. Four our two larger New England systems the figure is less than 20. Others more fortunately situated equal or exceed the general average. This means that in the greater part of New England the cars average to move but less than 2½ days per month. An incredible figure, you say, but all too true. This includes all cars charged to a railroad in revenue service, whether actually in use or awaiting repairs.

Percentage of empty mileage is very largely a problem of distribution, though a road is always somewhat at the mercy of its neighbors. This walks along hand in hand with "miles per car per day," and they generally rise or fall together: tonic for one is dope for the other. The average empty mileage the country over is slightly in excess of 30 per cent of the total, with the New England group of roads showing a slight improvement over this figure.

Average lading varies largely, and aside, from problem of handling package freight, is more or less fixed by general commodities handled, and the individual shipper or receiver of freight, also style and condition of equipment. A coal or steel carrying road will have a higher average than a road with heavy merchandise traffic. A receiver of feight, possessed of but little capital and no credit, up against hard business, buys in small lots and forces light loads.

The above, therefore, briefly outlines some of the problems with which we have to deal in the economical handling of cars.

There are three rules I would lay down as being necessary to follow to obtain satisfactory results.

1. Supervision.
2. More Supervision.
3. Supervision, Constant and Unfailing.

It is an inexorable law that our achievements are in proportion to our well directed efforts—or as the preacher of old said, "Whatsoever a man soweth, that shall he also reap." So I feel in this matter of car handling, our success is in precise proportion to energy expended, practically all of which is encompassed in the one word "supervision."

From here on, we have a dual proposition to consider—the external and internal, as it were. External as applied in the relation to the public, and internal in dealing with the railroad, its organization and personnel.

THE EXTERNAL PROBLEM.

Demurrage, while a familiar term to us all now, was not applied to car operation until less than thirty years ago. That ran the gamut of protest and prejudice, like its later companion per diem, but, also like per diem, has been proven indispensable. Cars are not now used to any great extent as general storehouses, though the present rate is not high enough to prevent this altogether. Our present rules are not perfect and probably never will be. There is, however, a gradual improvement. Demurrage is a subject in itself, and worthy an entire evening in its consideration. Its connection with our subject is close, and is the only real check the railroad has upon the prompt and economical handling of cars on the part of the public. Its various functions must be properly and thoroughly handled to develop best results, and it must receive constant and careful supervision. A great deal of good can be done, and time thus used is well spent in explaining to the public what prompt release of cars means, not necessarily to the railroad but to the shipper. The patron of the road too often feels, I fear, that such effort is pure bias and selfishness. The principle involved has been universally recognized. The results achieved are not only absolutely necessary to maintain, but to improve upon. We must not be blind to our own faults, but quick to acknowledge our failures. We must gain confidence before we can obtain co-operation. The shipper or receiver must in some way be made to understand what these apparently trivial things mean to him as a whole. He must be shown what it means to hang on to a car an extra day when it made no difference to him whether he unloaded one day or another, except that he has so much free time and might as well get all that is coming to him.

I believe that propaganda of this sort should be prepared and placed in the hands of agents for thoughtful and tactful explanation and presentation. True, such seeds often fall on sterile ground, but with constant effort they are bound to take root and flourish.

The average detention of cars by consignees in New England territory in 1914 was 1.65 days per car. If the shippers or receivers were to shorten this period by 10 per cent, 500,000 car days would be theoretically saved, or to put it another way, approximately 200 more cars would be available for daily use, saving the railroads a capital expense of a quarter of a million dollars. The figures at this proportion applied the country over, produce an enormous total, and indicate wherein the public is, or can be interested in the more economical handling of equipment.

In this connection it is interesting to note the suggestion made last fall by the Public Utilities Commission of Ohio to the shippers of that State, which are epitomized as follows:

1. Take your railroad officials into your confidence.
2. Promptly report to your railroad agent all loaded and empty cars on your sidings.
3. When ordering cars give the size wanted, the route to be traveled and the destination.
4. Avoid ordering more cars than you need.
5. Keep your actual car needs constantly before the operating officials of your railroads.
6. Load cars to their full physical carrying capacities; ten cars so loaded gain a car.
7. Avoid loading a car and "starting it on its way" without your knowing its final destination.
8. Release cars as promptly as possible after they have been placed for loading or unloading. Two days saved is a car gained.
9. Whatever you contribute to the delay of a car to-day will be reflected in the promptness of that same car's return for your further service.
10. Avoid unreasonable exactions.
11. Co-operate.
12. "Keep the cars moving."

THE INTERNAL PROBLEM.

The internal problem or handling within the organization and personnel is the all important one. Per diem is the only penalty and check upon proper handling of cars and requires every ounce of prevention by way of supervision that can be brought about.

The cars located in our New England roads figured at $1,000 per car, represent an investment of nearly $100,000,000. This equipment earns in per diem at the current rate of 45 cents, a total of approximately $15,000,000 per annum. May I ask in passing what supervision or care this sum invested in real estate would receive?

A road is credit or debit according as its balance of per diem earnings of owned cars on other roads exceeds or falls below per diem earnings of foreign cars upon its own road. We have examples of both in New England, and to give point to illustration it may be said that the New Haven is usually a credit road because of its large ownership of cars. Conversely the Boston and Maine is a debit road as it owns less cars than are in daily use upon its lines. Discussion of either condition is not particularly pertinent to the subject assigned to me, so I will only say that a road owning more cars than it uses under average conditions is a credit or debit road according to condition of general shortage or surplus of equipment, while with the road owning less than its average requirement of equipment, it is a constant effort, and thereupon hangs many a man's job, to keep the debit balance as low as possible.

DISTRIBUTION.

The first function of the car service department is proper car distribution. To obtain the maximum economy the right car must be in the right place and at the right time. Occasions are disagreeably frequent when a car is not a car—though it is very hard to convince the shipper of this fact. A shipper of box shooks at Bradbury, Maine, only knows he has sold his product and it is ordered forward to Youngstown, Ohio, via the Erie Railroad. What he wants is a car, and that right away. He has little patience with the agent who refuses to let him load a Grand Trunk car then and there available. He does not know, and generally little cares that at a nearby station there is an Erie or western route car available, and that this Grand Trunk is home at Portland, less than 25 miles away.

Systems of distribution vary on different roads. One may believe they get better service by distribution from divisional headquarters and another by distribution from one general office. Frequently geographical and traffic conditions change so that this largely becomes a local proposition. Personally I believe there is more success in distribution from one general office, with outside distributors if necessary, not necessarily following divisional lines, reporting direct to chief distributing or the general office. It can be said in favor of this that the car superintendent is looking exclusively after car matters, while the division superintendent is too busy with other detail to give much time to car distribution. He is likely to leave this to his local man, who has not the advantage of close association with ideas and possible interest and enthusiasm of the car service department proper. This is somewhat after the policy of our Scottish friend from Skibo, whose advice is to put all your eggs in one basket and watch that basket. So do I believe—put all cars under one department and hold that department responsible. If cars are not moving properly according to prepared statistics in hands of general officers, the car superintendent should be held accountable to know the reason why.

On the Boston and Maine we have tried, I believe very successfully, to carry distribution a step further by an arrangement which automatically disposes of all cars—home as well as foreign. The first step is to thoroughly acquaint all employes handling cars with the value of car days at the current per diem rate, exactly what you are trying to accomplish and why. I was surprised beyond measure to learn two years ago the number of men on the Boston and Maine Railroad that did not know what per diem was. They did not know what it meant. They had not the first idea what our method of paying for the use of a car was. So I believed it was a point gained to tell those men that we were actually paying forty-five cents per car per day, show them by example what it meant in case they slipped up in the handling of some equipment. Each foreign car is accompanied by a card showing the proper route home. We furnish to each agent and local freight conductor a routing or forwarding chart which gives disposal for any kind of a car for which there is no immediate requirement. For example, a certain territory is blocked off and we know by experience the normal movement of empty cars in that particular section, and at what points such cars are most needed or can be used. Home box cars may be sent north; steel coal cars to the mines; miscellaneous coal cars to tide-water, etc., and all foreign cars to junction with connection, according to home route; all cars not wanted to be forwarded in first available train; but we require the daily telegraphic report shall include all such cars to spare, the same as if asking for disposition. The general office then has opportunity to intercept particular cars if needed before they get very far. They at least get an early start, with no harm done. The agent may ask local freight conductor for any cars required which may be set off If not available, they are ordered in the regular way. Of course mistakes are made, but the net result shows economy. Such opportunity for disposal is given that no car need be held up awaiting orders from some one as to what should be done with it. The agent or yardmaster can be held to strict accountability.

HOME ROUTES.

Every railroad owned car foreign to the line on which it is located has a home route, the principle involved being that a road hauling a car one way underload, is the only road which can consistently be called upon to move that car empty in return. Some home routes lead in most circuitous and devious ways. For instance, a Barre and Chelsea Railroad car may have been given a load of granite for Dallas, moving off the Boston and Maine via the New York Central. In course of time this car is worked east, perhaps through some of the southern gateways and Pittsburgh, finally drifts into Harrisburg on the Pennsylvania Railroad and is not required for loading. There is no home route via the Delaware and Hudson—all the Pennsylvania Railroad knows is that they received the car from Lines West, and that is where the car is forwarded. And so on, it is bumped from one point to another until finally it may be making another six months' sojourn amid Texas scenery.

A movement which we believe is to be very helpful in eliminating the above trouble has been brewing similarly to demurrage and per diem, and has just recently taken on quite universal proportions. Up to recent years each road has had its own ideas and methods of home routes. In some cases—which still exist—no form of traveler card is provided, so that agent or yardmaster has no knowledge of where car belongs without asking the general office. It is apparent that many a car sticks hard under this plan.

The New England roads pooled interests three years ago and issued cards to travel over each other's roads. It worked. Last year recruits were gained. Effective May 1, next, practically all roads east of Chicago adopt a card which will be interchanged with the car, and if extended, which is confidently expected, the case above mentioned would not have developed in the same way. The Pennsylvania Railroad would have had the information that the Barre car properly routed via the New York Central and would have turned it over to them for movement home. Thus many hundreds of useless and costly empty miles and many days per diem would have been saved. With the scheme in general operation there will be thousands of cars moving more in direct line of home; they will arrive weeks and months earlier in many cases, and there should be a corresponding decrease of empty cars on the road; fewer empty miles for all roads; cars more readily available and proportionate increase in car economy.

Efforts in Economy.

The larger yards usually afford the wider field for effort in economy. At the small station, all cars are practically under the eye of the agent, and with few exceptions he may be depended upon to do what is expected. While in large yards forces are carefully organized and surrounded by various means of checking; cars are liable to delay, which is only overcome by constant watching and supervision. In these days when every railroad is forced to practice the most rigid economy, the first thing which usually comes to mind is the payroll and immediately descent is made upon it. It may be a yard clerk here, an assistant yardmaster there, or a switching crew somewhere else. Each or all was first established for some definite reason, to work out some economy, or perhaps as a bit of luxury, which at that time was justified. No road will knowingly take off men who are saving money in excess of, or possibly equivalent to their wages. They do not intend to sacrifice in efficiency. They may, however, figure out that work can be covered just as well.

The time has come when another factor should be taken into consideration. What is to be the effect on car distribution if this or that is done? How many cars will remain unswitched if this crew is laid off? How many more cars will be pushed out of the yard in a 24-hour period if proper switching is performed? The supervision must, therefore, be more careful, more painstaking, more thorough. The agent holds the yardmaster to account for his costs, and his delays. The yardmaster must know for a certainty as to what cars are not being properly handled. The yard clerk must keep his records absolutely clear.

A recent test was made on a neighboring road to ascertain value received from increasing yard switching force to a point where all switching was performed promptly, and every car moved out of town at the earliest possible. Sufficient clerical help was provided to make an absolute check on result. All costs in wages, etc., were properly charged to the test, and as I recall, nearly two dollars was earned in per diem saved for every dollar spent. It probably is not fair to apply this as a general proposition, for without doubt, the stage was set just right and every one was keen for a showing. It is, however, significant of the possibilities, and forces to our attention one important fact, that it isn't always car economy, and that is of distinct value, to clip too closely on switching. The yard must have intelligent supervision, and they must have the power to move cars when classified.

Facilities play a very important part in yard handling possibilities. A yard trying to make 30 classifications on 15 tracks is always at a disadvantage and in times of peak business bound to be congested. Tracks, in plenty, and properly arranged are an essential at all large loading stations and transfers. Storage and bulk delivery room must be sufficient to handle business without being obliged to drill out cars day after day, which should have been placed upon arrival except for lack of room. Constructive placement is alike expensive to railroad and consignee and is to be avoided.

The Railroad Men's Improvement Society---A Splendid Movement

Note: The following paragraphs contain extracts from recent addresses before the Railroad Men's Improvement Association, an organization recently formed in New York for the purpose of giving railway men a greater opportunity of becoming generally informed regarding the various important problems which confront present-day railway management. The movement is a splendid one and has already demonstrated its unusual value from an educational point of view.

Government Regulation of Railroads.

By Edwin R. A. Seligman, Professor of Economics, Columbia University.

THE only safe way for the railways or for any other interests that think the public wrong is to educate the public if they are wrong, but not simply to oppose the public by a persistent denial of undeniable charges. The only consequence of railway opposition was that this pent-up public feeling finally resulted in the early years of this country in a whole series of laws which gave not only the Interstate Commerce Commission, but now also to our State commissions, adequate and lasting powers.

But the railways learned their lesson. As late as 1906 when the Mann-Elkins law was being discussed the railways fought tooth and nail, and were beaten. In 1910, they changed their tactics co-operating to a large extent with the Government, and effecting changes as to which all more or less agreed. I remember not long ago being seated at dinner next to the president of one of the chief railway systems of this country, who said, "We cannot get on without the Interstate Commerce Commission. It is a protection, a help to us, instead of being a hindrance to us." I remember discussing the same matter a few years ago with Mr. Harriman, when we spoke of consolidation and governmental interference. I asked Mr. Harriman, "Don't you find the work of managing your lines an almost impossible task?" and he said: "Put me in a small room twelve feet square, and I will manage all the railways of this country if they let me, but," he said, "they won't let me, and they ought not to let me." He realized that there was such a thing as the possibility of going too far. And nowadays, almost every wise railway man believes that there is a public side to the railways, as well as a private side. The unfortunate thing is that owing to their old-time attitude, and to the opposition that was originally engendered, the public now has gotten into the habit of blaming the railways for everything, and not infrequently takes the indefensible attitude of making the railways responsible for things over which they really have only slight control.

What we need in this country nowadays is not so much an increase of this intolerant attitude, but a process of education on both sides. And when I talk of education, I refer especially to you gentlemen here to-night.

I think each one of you can do something. While there is no doubt that the vast majority of railway men in this country are to-day trying to do the right thing, there are still left a few of the old type. We should prepare to study the mistakes of the few, who still largely monopolize public attention; and, in the same way, to study the mistakes that have been made by some of our public service commissions which have gone too far, in an extreme attempt to regulate. The extremes do not afford a real indication of the best spirit and the best attempt of the parties to the modern railway problem. What we need on the part of the railway man is the study of the underlying principles of public regulation. Of course, every railway man will know how he can make the most money out of the railways, how to finance the railways so as to allow the highest wages to the operatives and the largest dividends to the stockholders; but we need more than that. We need also an appreciation of the proper public economy of the railways; and these two things do not always go hand in hand. And, again, what our State railway commissions and the Interstate Commerce Commission need is a realization of the fact that unless you can make the railways, which are still the embodiment of private capital in this country,—that unless you can make them and keep them a productive and lucrative proposition, that unless you can arrange things so that the average man will continue to invest his money in railways, you are killing the goose that lays the golden eggs, and that the end is going to be not only less profits, but less service, less facilities, and less economic development of the whole country. Therefore, I say, the problem is not simply one of the fate of the railways in this country, it is a problem of national prosperity, which can be solved only by a campaign of mutual education and knowledge. We must realize that unless this experiment of the government regulation of railways succeeds there is grave danger that the public may take the bit in its teeth, and imperiously demand public ownership and management, than which, for the near future at least, I consider almost nothing else a greater menace to our democratic institutions.

Why is it that this talk of government ownership of railways seems so wild to us, and is nowadays heard only on the part of the extremist? It is because the sensible man must realize the present dangers of government ownership of railways in a democracy like ours. These dangers are fiscal, economic and political. The fiscal danger is that the railway budgets far transcend in importance our entire Government budget. The railway receipts are far greater than our Government revenues to-day, and if we were to put the railways in the hands of the Government, with all these inevitable oscillations of earnings, these immense fluctuations would necessitate such an entire overhauling of our tax system, of our revenue system, of our budgetary system, as to throw all of our finances into the most dire confusion. As regards the economic side, whatever we may think of the Government ownership of the post office, or even, if you will, of the telegraph, or things of that kind, we must not forget that the railway is the greatest investment of capital in the world, and that Government business is fairly satisfactory only in proportion as the business operations are simple and the capital investment slight. The more complex your operations and the larger your investment of capital, the greater the chance of inefficiency and lack of economy in cost of operation in a democracy Therefore, when you take what is at once the greatest of all industries, the most subtle, the most difficult, the most complex, —and want to put that industry into the hands of the untrained, inexpert, democratic civil service, you are imperiling, it seems to me, the best interests of the country. And thirdly, the political objections are perhaps the greatest of all. We know the troubles at Washington every time a new tariff bill is passed. Rumors come to us sometimes of what goes on in the committee meetings. But the business interests affected by a change of the customs tariff rate are insignificant in the extreme compared with those effected by the mighty changes involved in the alteration of commodity or class rates of the railways from place to place or between individual and community. At the present time, to put the railways into politics, to make them the football of partisanship, would be, it seems to me, suicidal. Yet unless we want to face all these dangers, unless we desire to invite such a far-reaching movement as this, we must make public regulation of railways of this country a success. For public control of some kind has come to stay. The period of railway individualism, the period of what I might call the shoe-factory era of railways, has gone by, never to return. What we all realize today is that the railway is a public institution, delegated to individuals for certain purposes, and subject to the consideration of private profit on the part of the individual investors, provided and to the extent that they can give evidence of their social responsibility. The railway is in short a public trust, an enterprise entrusted by the public to private individuals who must be permitted to enjoy the reasonable advantages of private property to the extent, and only to the extent, that they observe the greater good of the whole community. To combine the maintenance of reasonable private profits with the legitimate demands of social progress is the railway problem of to-day.

This is the reason why I hope that all of you will do what you can to study the problem from the broader point of view. For it is upon you, as upon all the rest of the business men of this country that the decision of the question depends. Upon the degree of social responsibility shown by those who own the railroads, upon the realization of the necessity of legitimate private interests shown by those who are directing governmental regulation, and upon the fruitful co-operation between them depends not only the future of the railway, but the future of business reform, of social reform, and even of political reform, in our beloved country.

Aspects of the Financial Problem of the Railways.

By DR. H. PARKER WILLIS, SECRETARY, FEDERAL RESERVE BOARD.

AS a result of the legislation, with which we are all familiar, intended to control transportation rates, our railroads have become far more stereotyped in practice than formerly. They do not venture to reduce a rate in the hope of stimulating business because they recognize that once reduced, a rate can only with great difficulty be advanced. The railways, whatever the stabilizing influence affecting the rate of interest may be, will, therefore, always have to meet the question whether they can provide the actual net resources that are necessary to take care of their fixed obligations. Undoubtedly the recent advance granted by the Interstate Commerce Commission will be of some service. But will the railroads be permitted to retain those advances? Will public opinion allow the roads to keep for themselves the fruits of these higher rates? Will organizations of employes regard the rates as only a basis for increased wage demands to be taken from the roads as soon as they can by arbitration or other methods, succeed in absorbing them?

This is not a financial problem, it is a question of popular attitude and education. But the problem is financial in this sense. Up to date the railroads have been too largely dependent upon banking institutions for the financing of their obligations. The time has come when the public must be induced and expected to take over these obligations and to carry them as investments. If they cannot or will not do this, then the financial problem of the railroads is truly a serious one. It is undoubtedly a fact that the railways of the country, in order to introduce the technical improvements in their financial situation of which I have spoken, must be able to furnish the basis of all long term credit—a safe surplus of revenue over expense, applicable to the payment of interest. This they cannot do unless they are enabled to earn satisfactory revenue from freight and passengers, thereby providing for meeting their obligations, and of giving the holder of such obligations meantime, the confidence that his funds are in safe hands. Something has been done, as I have noted, by the recent five per cent rate decision of the Interstate Commerce Commission. This decision, however, is of more importance in what it suggests than in what it accomplishes. The basis for it is manifestly found in the statement that the railroads are recognized as having distinct and ascertainable needs, and are to be authorized to collect sufficient revenue for the service they render to compensate the holders of their securities for the use of the funds intrusted to the carriers themselves. There has been an unmistakable turn in public opinion with regard to this subject. So long as the roads were regarded as possessing unlimited resources, practically indestructible by any kind of legislation or exactions, there was little hope of establishing a business basis for the acquisition of railroad capital. It is only when the railroad is recognized as being a public utility both as regards its claim on the public and as regards its obligations, that a just balance between service and income can be developed. Such a balance it must now be the effort of the country to obtain. How can it accomplish the result? First of all, the dictates of the situation call for the development of a theory of railroad rates which will result in giving to the carriers a return upon all capital legitimately invested by them. Regulation cannot work only in one direction; it must operate to the advantage of the railways as much as to their disadvantage. It is traditionally a poor rule that will work only one way; and in this case, efficient service to the community dictates that the laborer shall be considered worthy of his hire. If railroads cannot tax the public according to their own will, as we all to-day, I think, agree that they should not, then the public cannot afford to tax the railroads to such an extent as to destroy the capital of those who have legitimately invested. Neither can the railroads be expected to go on extending their facilities and increasing their services to the public unless they are guaranteed at least that minimum rate of living wage which is demanded by laborers in the interest of society. It may be an unpopular saying, but nevertheless a true one, that the wages of capital must be paid quite as regularly and quite as fully as those of labor, if capital is to continue to perform its functions in the community. Those who have and invest capital, will not continue to do so if their savings and investments are so affected as to yield them no return. The great mass of the public appreciates the problem and sympathizes with the difficulties of those enterprises in which they are themselves interested much more strongly than in those which are to them only an abstraction. This is true of the railways. There has undoubtedly been a large advance within recent years in the distribution of both stock and bonds of the carriers among the public at large. But rapid as this progress has been it has not yet been rapid enough to meet the requirements of the case. It has not gone far enough to solve the difficulties of the situation. It has not reached the real root of the difficulty. Too much railroad capital has been derived from the banks and financial institutions, and has been carried by them as part of their investments. Too much railroad capital has been obtained through the sale of shares and bonds under conditions that have not resulted in attracting the real ultimate holder. A few objectionable operations within recent years have done more to frighten and alienate the small holder than a long period of popular education could do to attract him and overcome his prejudice. It is necessary to get the shares and obligations of the railroads into the hands of the mass of the public, and to make them really and in fact proprietors of the transportation lines. This measure is called for urgently from the financial standpoint for the reasons which I have thus set forth. It is, however, called for much more urgently from the social standpoint. The carriers are public utilities. And this character is not one-sided but must be considered from every aspect. The roads should be public in the sense that they must render public service and must meet the requirements of the community for accommodation. When in this sense the railroads have been popularized with the community, a two-fold benefit will result. The banks and investment institutions of the country will be relieved of the necessity of carrying long term investments when they should be devoting their funds entirely to the development of commerce and business, while on the other hand the people who are holders of the securities, will recognize the claims of those who look to the railroads for earnings, as well as of those who look to them for accommodation.

When this result shall have been attained, and in proportion as it shall have been attained, the so-called rate problem will have disappeared. The public will no longer look upon the railway as an incubus, and will begin to regard it as a business partner. It will no longer feel that every dollar paid into a railroad treasury is a dollar deducted from the community's well being, but it will recognize the same mutuality of benefit in dealing with the carrier as is recognized in local communities where men deal with others because they expect those others to deal with them in return.

Loyalty and Co-operation.

By F. B. Lincoln, General Superintendent, Erie Railroad Company.

In any direction that we look, in any present form of human activity which we examine, we find that co-operation is a basic essential to accomplishment. Instinctively we co-operate, we could not refrain from it if we would, but the *method* of so doing is measurably susceptible of government by individual will, and it is to this feature we should give attention, and it is particularly incumbent upon us, who are engaged in what has grown to be one of the greatest fields of human effort, one of the broadest and most exacting of scientific professions, the one basic activity next to agriculture, most important to the existence and welfare of the whole human family, and possibly the profession above all others now where the effects of intelligent co-operation are most marked, I repeat, I believe it is particularly incumbent upon us to specifically direct our thoughts toward the broadest, most thorough and most willing co-operation possible, constantly widening each individual sphere of influence, constantly lifting up and holding up the hand of each associate, and strengthening character by helpful exchange of ideas and principles thus effecting increased usefulness by co-operative effort that extends in ever enlarging circles like the waves from a pebble dropped on the calm surface of a summer sea.

Let your mind for a moment run over the details, with which you are all so familiar, of the activities that go to make up our profession of railroad service of to-day. From the first conception of a line based upon the co-operative needs of a widely dispersed population for means of intercommunication, up through every grade of preliminary financing, construction, equipping and operating, the measure of success depends upon the intelligent co-operation of the many minds and wills concerned in the enterprise, and the more perfect the co-operation, the more harmonous the diversified activities concerned, the greater the success. Bring home to yourself and to your own desk an individual thought on what real co-operation means. No one here works alone or independently. You will handle phases of questions that originate elsewhere or originate matters that are handled by others. No one of you begins and ends a question of a completed subject. Someone else is concerned in every professional matter that enters into your daily life and work. Do you stop to think how you can make it easier for the other man to intelligently comprehend and successfully accomplish his duty in the work in which you are jointly concerned? That is the effort required of you; that is elemental co-operation, and that very effort in its effect upon the other mind sets in motion an impulse that never ceases through all eternity, for in its acceleration of the activities of the next mind it promotes increased efficiency which again and again is reflected in the successive hands through which every originated thought or act must pass.

Our work in this great profession of ours takes in almost every phase of present day human effort and all of it in its great variety passes at some time or other through your hands, from the constructive and progressive ideas originated by our presidents down to the simple duties performed by the humblest laborer on our roadways, and through it all in every thought or action lies the requirement of intelligent co-operation to insure success. The impress of every mind and every hand concerned in the progress of each interwoven activity is seen or felt by every other mind and hand and if the application in each individual case is made with the constant thought of helpfulness and thoroughness the true spirit of co-operation will have prevailed in the work done, with its consequent far-reaching benefit to you individually, to all of those equally concerned and interested in your work, and to the company to whose welfare your best thought is given and to whose success your most intelligent effort should be directed.

I could say much more, but why elaborate on so simple a basic principle to you who are devoting your lives to the daily exemplification of the effectiveness of intelligent co-operation. All I can suggest is that instead of letting it be a sub-conscious and elemental impulse that you bring it out into the sunshine of your workroom and keep it as a motto on your desk or your office wall, and that sunshine which seems sometimes to be clouded in the worry and strain of press of work will be brighter and cheerier for you and your co-workers.

The other word set up by you as part of my text is "Loyalty." Is any comment needed to impress upon your mind the value of the results to you and to the interests you are representing daily in loyalty of service as a prerequisite to successful work and a clear conscience? What does the word mean as applied to us in the relationships we hold to each other and to the companies upon whose future and success our own depends? It means absolute devotion and unremitting application to duty, unswerving obedience to the rules laid down for the proper conduct of our business and constant effort to build up the reputation and effectiveness of our organization. It means watchfulness of undeserved criticism; a steady attempt to avoid all appearance or action that will invite criticism, and a firm purpose and effort to lead the minds of critics in lines of thought of friendly suggestion instead of adverse comment.

"Loyalty" is a synonym for self-respect, and without the latter no man is of value to himself or others. Loyalty to one's self in the last analysis implies loyalty to duty higher than which there is no human attribute. It implies a righteous self-interest, and no man is without self-interest if in his right mind and having the interest and welfare of others at heart.

"Loyalty!" What does the word conjure up in your minds in the retrospect of human history, and in a review of contemporary events. Adherence to that principle has been the mainspring of life through all recorded time, and has been the principle upon which men have builded civilization and government. It was this impulse that prompted your father and my father to offer their lives that this country might be saved in its freedom as a fit place for us to live,—as a haven of safety for the oppressed of all the world and a Mecca for all men endowed with ambition of purpose in its marvelous wealth and growth of opportunity. For the thought expressed by that one word men have given up their lives through all the ages, and from that impulse alone to-day ten million men are on the battlefield,—lives are being swept away like chaff before the wind,—homes are being desolated and one whole nation has almost been wiped out from the face of the earth in giving up its whole manhood in devotion and loyalty to its country.

"Loyalty" and "Co-operation" are to the railroad staff what the rolling stock is to the system. To cut down your rolling stock is to perform an operation on your system; to allow the germ of disloyalty to infect your esprit du corps is to invite the undertaker to come in and embalm the body of the organization.

To paraphrase, and not irreverently I assure you, a part of the ritual of one of our most solemn religious services our text might read,—"Loyalty is the first and great requirement, and the second is like unto it, Co-operate intelligently with your fellow-workmen. Upon these two premises depend all progress and success."

The Successful Application of the Brown System on the Southern Pacific

IT is now twenty years since the Southern Pacific System adopted the Brown system of regulating efficiency—a system whereby an employe is not dropped from the service for his first infraction of rules, but is given another chance, and wherein his good qualities are able to count in his favor when needed.

The Southern Pacific was one of the first railway systems in this country to change from the punitive to corrective system of discipline. The method of "Discipline by Record," known as the "Brown System," taking its name from its originator, Mr. George R. Brown, general superintendent of the Fall Brook Railway, was first made effective on the Southern Pacific August 1, 1896.

At that time the system was admittedly experimental, but the fact that it has been in successfud operation for almost nineteen years, with but few changes in the original plan, speaks well for the care and thoroughness which attended its establishment.

The word "discipline" comes from the same root as the word "disciple,' 'a pupil, a learner, a follower. According to Webster, "to discipline" is to educate, to develop by instruction, to correct faults, to train, to instruct, to regulate, to develop the faculties. Strict discipline is essential to the successful operation of a railroad. No continuous service performed by man can be perfect, but a high state of discipline cannot help but produce a high class of service, and successful operation is dependent on good service. Actually suspending a man from the service for five, ten or thirty days as the case may be cannot possibly make him better. On the contrary, it deprives him of the opportunity to earn money and not infrequently the punishment bears most heavily on those dependent upon him for support.

Therefore the underlying principles of "discipline by record" or "corrective punishment" may be briefly summarized as follows:

It avoids loss of time and wages of employes, and consequent possible suffering of those who may be dependent on their earnings, as well as demoralization of the employe by enforced idleness.

It avoids that incorrect and pernicious feeling on the part of the employe who has been actually suspended and thus lost money in wages, that he has paid the company for the loss and trouble he has caused, and that he can settle again in the same manner.

It enables the judgment of each case of an erring employe on its merits, with due regard to his previous record and future availability, considered with reference to the interests of the company and its duty to its patrons.

It enables all employes to become acquainted with each case for which discipline is imposed, and to learn something from the failure of others.

It encourages and stimulates all employes to cooperate with the officers of the company in all matters tending to produce harmony, economy, safety and efficiency, and thereby produces a better service, resulting in credit to both the company and its employes, as well as increased satisfaction to the public. Each employe can work with the knowledge that the excellence of his record, the prospect of his continued employment, his promotion, and final success, depends on his own conduct and exertions. By notably good and faithful work he can accumulate a stock of credits that will practically insure him against dismissal in case of some oversight or error that otherwise would deprive him of employment. The most efficient men are thus encouraged, developed, benefited and retained; while those who prove to be unfit for the service, though dismissed, are dealt with fairly and justly.

It enables employes to gain in purse, in self-respect, in manliness, in interest in their work, in permanence of employment, in loyalty to the company, and in solicitiude for its interests, and on the other hand, the company gains a man more contented, more intelligent, more courteous, more watchful and zealous for its interests.

The system of cancellations has been arranged in a manner calculated to afford employes an opportunity, by good conduct and strict attention to duty, to eliminate from their records the demerits charged against them, a perfect record for three months cancelling a reprimand, a perfect record for six months cancelling ten demerits, a perfect record for nine months cancelling more than ten and not exceeding twenty demerits, a perfect record for one year cancelling more than twenty and not exceeding thirty demerits, and a perfect record for one and a half years cancelling more than thirty and not exceeding sixty demerits.

While such acts as disloyalty, dishonesty, desertion, intemperance, insubordination, wilful neglect, gross carelessness, immorality, violation of rules whereby the company's property is endangered or destroyed, making false reports or statements, or concealing facts concerning matters under investigation, etc., subject the offender to summary dismissal, the discipline by record system avoids the dismissal of an employe for a single violation of the rules that does not injuriously reflect on his reputation, conduct, capacity or future usefulness. For notably excellent conduct, deeds of heroism and loyalty, good judgment in emergencies, credits are given to employes and such credits are used to offset an equal number of demerits, thus effacing the latter from the records.

As before stated, man is not perfect, and railroad men are no exception to that rule, but the individual, who after years of faithful service, can look back with pride on his record, has gained something that money cannot purchase—the satisfaction that comes to one who knows that he has performed his duty to himself and to his employer and has performed that duty well.

Co-Operation in Export Trade

By William S. Kies, of the National City Bank of New York.

Note: The following paragraphs are taken from an address before the meeting of the American Academy of Political and Social Science, held in Philadelphia on April 30, 1915.

THE UNITED States has been given by nature all of the resources necessary to build a great manufacturing nation. We have iron, timber and other building materials with which to construct factories and workshops. We have water power and coal in abundance. We raise in this country vast quantities of raw materials. Not only do we supply our own manufacturing establishments, but each year we export millions of dollars worth of such raw materials to other countries, and we have the power to increase indefinitely such production. With these advantages in our favor, the United States should become the greatest manufacturing nation of all times.

It would seem of vital importance that the best thought and study of those who are interested in the development of our foreign commerce should at this time be directed toward the finding of some temporary expedient, if possible, which will permit manufacturers in certain lines to combine in organizations for the study and development of new markets.

Opening new markets abroad costs money. Wasteful competition in such markets injures the American manufacturer, serves to discourage effort, and benefits only the foreign consumer and the foreign competitor. In its last analysis, unprofitable foreign trade is a burden upon the industry at home, whereas profitable export business results in a prosperity for the particular industry, in which capital and labor share, and which ultimately benefits the domestic consumer.

There are no restrictions in the Sherman act against combination for the purpose of studying foreign markets, collecting and disseminating information, investigating efficiency methods in production, or against promoting in general the interests of the American manufacturer. Combinations under the Sherman act are only illegal if they restrain or tend to stifle competition among the manufacturers of this country, whether the competition be in foreign or domestic business. Combinations for the doing of export business, which would result in the shutting out of other concerns from the foreign field as the result of a monopolistic scheme of organization, would probably be illegal under the Sherman act as at present construed. And yet export trade, with its many difficulties and problems, requires such a concentration of resources and effort that the great benefits to be derived by the whole country from a large foreign commerce argue powerfully for the removal of all restrictions upon combinations in export trade.

Without wanting to be understood as favoring, under any circumstances, the retention of the provisions of the Sherman act which so seriously handicap the development of export business, but realizing that while waiting for congressional action the manufacturers of this country are losing precious time in which should be begun preliminary foundation work of greatest importance in the upbuilding of our foreign business, I desire to suggest in brief outline, for your consideration, a concrete plan for the organization of export societies, which, in its essentials, would appear not to violate the prohibitions of the Sherman act, when interpreted according to the "Rule of Reason."

Let there be organized under the laws of one of the States a corporation to be known, for example, as The American Drug Manufacturers Export Corporation, The American Coal Producers Export Association, or some similar title; the organization to be incorporated with sufficient capital stock to permit all of the members of the industry throughout the country, or in certain cases those in a particular locality, who so desire, to become members upon exactly the same terms. Each producer desiring membership to subscribe to a definite amount of stock, his subscription being payable in equal instalments over a term of years; sufficient stock to be retained in the treasury to provide for those who might subsequently desire to become members upon equitable terms fair to the original members, each member to own exactly the same amount of stock.

The general scheme and method of operation which will constitute the contract btween the corporation and the members, as well as between the members themselves, will properly be embodied in the articles of association, and will be along the following lines:

1. The corporation is to be impartially organized in a manner fair to all its members, and the

management selected with expert ability as the sole test.

2. Membership on the board of directors to be arranged so that in due course of time every member shall receive representation. To void possibility of unfair treatment, there will be provided a permanent arbitration committee, to be selected in an impartial manner, and to be made up of persons having no interest in the industry. To this committee shall be referred any questions in dispute, and its services may be invoked by any member.

3. Each member shall, at the beginning of the year, report to the Export Corporation the amount of its product available for export during the year, the conditions of delivery and of acceptance of orders, and the price at which it is willing to sell in a foreign market. These tenders may be changed from time to time, under such conditions as may be thought advisable, and special quotations of additional quantities may be named whenever desirable.

4. The sales force of the corporation will undertake the disposal of the exportable surplus of its members on the terms and conditions specified, obtaining the best price possible, making use of the export commission houses, the local representatives, the trained salesman and every agency of value in building up foreign trade. The difference between the price quoted and the price obtained shall belong to the Export Corporation as a profit, and upon all sales all members shall pay to the Export Corporation the same percentage as a commission.

5. Whenever a demand shall be found to exist in a particular market for a certain quantity of goods which must be sold at a lower price than quoted by any of the members in order to meet foreign competition, all members shall be notified of the possible order and given an opportunity to meet the foreign price. Competitive bids will be received, and the lowest bidder is to receive the order; or, if there are a number of low bidders, the order is to be divided.

6. All profits, after deducting all expenses, and setting aside such a sum as shall be deemed necessary for promotion, advertising, establishment of permanent quarters, etc., shall be distributed equally among the members.

7. The Export Corporation shall provide an expert who shall collect statistical data and information of value to the industry, which shall be distributed promptly, and under the same conditions, and in the same manner, to all members. The Export Corporation shall also have on its staff an efficiency engineer, who shall make intensive study of methods of production in the industry, cost of production, competitive margins, and the productive capacity of various plants. His services shall be available to any of the members for the purpose of giving advice as to the development of greater efficiency in production, diminishing the cost of production, or increasing the output. He shall also give to all members technical advice as to the best methods of meeting peculiar requirements of foreign markets.

8. The Export Corporation may also act as a purchasing agency for raw materials. Being able to purchase in large quantities, as a representative of many consumers in a given line, it will be able to buy in foreign markets at the lowest prices. All members will be entitled to the Corporation's services in this respect upon the same terms.

It is, of course, not necessary to limit the membership in such an organization to particular lines. Groups of manufacturers in allied lines could profitably unite to form one export company which could conduct a sales campaign for all, as, for example: a drug manufacturers' export corporation might well include manufacturers of toilet articles, cosmetics, perfumes and bathroom accessories. Manufacturers of cottons, woolens and silks might combine in one large textile export association.

In the scheme of organization outlined, competition is unrestricted among all the members of the Corporation. Each member fixes the price at which it will sell its product, and in effect tenders to the Export Corporation the disposal of a certain product at a certain price. If the qprice is too high, the product of a particular member remains unsold. When special opportunities are found in a particular market, all members are given a chance to bid for the business. Fair competition without favor is thus guaranteed to each of the members. The member with small resources and a minimum output is not placed at a disadvantage if he cannot meet the prices of the more powerful members of the group, because he will receive his share of the profits of the Corporation, which will result, in a large degree, from the commission which each member, whose product is successfully sold, must pay.

The Corporation can not be said to restrain the trade of its members or those who are not members. Its benefits are open to all in the industry on the same basis. Its members are not obliged to sell exclusively to or through the Corporation, and are thus free to develop trade for special brands, if they can do so better than through the Corporation. The prohibitions of the Sherman act, in regard to restraint of trade, are meant for the benefit of the American consumer and the American manufacturer, and neither the American consumer nor manufacturer can be injured by the operations of the Corporation. Competition in domestic markets is not affected. If the American consumer is affected at all, it will be beneficially, because through the disposition of a large part of the output in the foreign field, American manufacturers will be able to approach nearer to capacity production, thereby bringing down the unit cost of the article manufactured, with a possible reduction in price, in the domestic market.

The greatest advantage to be derived from such an organization is the concentration of the resources of different manufacturers in the building of a thoroughly efficient, highly trained, sales organization, under skilled management, devoting all its energies to the development of foreign markets.

One of the greatest benefits to be gained from a thorough organization of our export activities would be unity of thought and action in dealing with some of the large problems connected with foreign commerce.

Experts representing various industries, working in conjunction, could accomplish much toward simplifying the mechanical details of export trade. Greater uniformity in bills of lading, shipping documents, consular practices and fees, customs house regulations and port charges might be brought about by united effort. Better service could be exacted from steamship companies and with greater knowledge and closer attention to details the numerous delays, exactions, and fines in foreign customs houses, which are so exasperating to the importer and exporter, could, to a great extent, be avoided. To a body of experts of this character could be intrusted the investigations, if not the preliminary formulation of commercial treaties of the United States, which are of such importance in the development of reciprocal trade relations with foreign countries.

The above plan is put forth not as a finished scheme of organization which should be adopted without modification, but merely as a suggestion in broad outline, in the hope that by focusing attention upon a concrete proposition some definite results might be accomplished. If the scheme of such a co-operative export corporation or society, which is about the only form of legal combination possible under our existing laws, should prove to be impractical in its application to present conditions, that fact in itself should emphasize the immediate necessity of unshackling American business so as to permit freedom of action in the foreign field. On the other hand, if so reasonable a plan for co-operative action as that outlined be considered, in its fundamentals, as violating the provisions of the Sherman act, then the absurdity of having such a law upon our statute books would appear to be clearly demonstrated.

Of course, it must be recognized that co-operation through the means of some legal form of combination is not essential or necessary to the development of foreign business in all lines, although in standardized lines where foreign competition is keen our manufacturers must have the right of organization if progress is to be made.

For the marketing of many products, the present export or commission house, with its thoroughly efficient organization, furnishes the best of facilities to the exporter, although even here an organization among various manufacturers, for the purpose of developing a market and carrying on a general publicity and sales campaign for the benefit of all, will prove valuable. Such a selling organization might arrange with the commission house to attend to all of the necessary details in the actual exportation of the goods.

In certain particular lines, too, where a manufacturer is interested in developing a market for a particular brand or design, there might be little advantage in combination with a competitor, except, perhaps, that there should be a clearly recognized right among such competitors to make binding agreements in regard to the extension of terms in foreign countries.

The matter of credits, due to the difficulty in obtaining credit information concerning firms in foreign countries, is a serious obstacle to the growth of export business. The long time credit which has heretofore been customary in South American countries and Russia is violative of sound financial principles. A man should receive such time for the payment of his bills as will permit him to realize upon the sale of goods. When he has received the money from the sale of the goods a part of it belongs to the merchant who sold him the goods and the rest is his profit. If he is allowed to keep that which does not belong to him for a further length of time, he will be tempted to speculate or at least to divert the money into other sources. Too long credits encourage over-stocking, over-extension and speculation. If, in the cultivation of new markets, American manufacturers, in order to get business, will be obliged to compete with each other in the extension of lengthy credits, and will be denied the right of agreement or co-operation in matters of this kind, the results in the long run are bound to prove disastrous.

Injurious competition between our manufacturers in foreign markets will inevitably result in making the business for all unprofitable, forcing many out of the market in disgust, to the entire satisfaction of our foreign competitors, who derive profit and enjoyment from our attempts to destroy one another in internecine industrial warfare.

It cannot be denied that in the scheme for an Export Corporation as outlined, there are opportunities for abuses and the growth of practices which may be injurious to some of the members. By the appointment of a permanent arbitration committee, one of whom might very properly be a member of the Federal Trade Commission, any member who felt himself discriminated against, or unfairly treated, could obtain redress. The Federal Trade Commission, too, has power under the law to correct such abuses upon complaint. The important thing is to find some plan of co-operative effort, which is fundamentally legal and at the same time practical; some plan which can be availed of by our manufacturers without danger of criminal prosecution, until such time as the law shall have been changed.

The smaller manufacturer, of necessity, has become interested in the subject of developing export trade. In many instances he can not afford the cost of a promotion campaign in a foreign market. The very prohibitions of the Sherman act which are designed to give him an equal opportunity operate to put him at a disadvantage with the larger manufacturer capable of maintaining an effective sales organization in foreign lands.

By combining the resources of manufacturers in a given line, a highly trained and efficient organization can be developed, operating at a minimum expense, which can scientifically study the markets of the world, disseminate information for the benefit of all and conduct comprehensive sales campaigns along educational lines, which will be sure to bring favorable results.

The possibilities of our commercial future carry a striking appeal even to the ordinary imagination. Whether the great opportunity in the Nation's history will be taken advantage of in full measure, to the lasting benefit of the whole people, will depend upon the education of our people to the value to this country of export trade; upon the development of a genuine spirit of co-operation among our manufacturers in the intensive study of the possibilities of new markets; upon the patience, skill and tact which is exercised in the cultivation of the foreign field; upon the building up of a public opinion which will compel the removal of the fetters from legitimate business, and, of most importance, upon the assumption of leadership in this movement by men of broad vision, untiring energy and unselfish devotion.

The American Commerce Association

Note.—The following paragraphs deal with a new national association of traffic men which has recently been organized at Chicago. The object of the organization is to set standards of efficiency for employers and employes, as it is believed that the present tremendous waste of time and money in traffic work, demands employment of trained men. The "Railway World" is in entire sympathy with this movement, as it believes it will not only develop more harmonious relations between those who employ and those who operate the railways, but will serve to more fully inform the business men of the country regarding rate matters and thus enable them to more intelligently and economically employ our transportation agencies. In the future there will be a new department in the "Railway World" devoted to the traffic efficiency clubs of this Association, located in the various cities of the country. Under this heading practical railroad and industrial traffic matters will be discussed.

A Practical Training Course.

PRESENT and future conditions demand more efficient traffic men to handle interstate commerce and traffic matters. In order that men may be fully equipped to meet every problem which will confront them in the future, their training must cover every feature of the traffic work. Interstate commerce is very easy to learn provided the elements of it are presented in their natural order. In experience different questions and problems arise which have never been explained, making daily problems often very difficult of solution.

If you should give a man ten lines of printed matter, take a blue pencil and entirely blot out one-fourth of the important words, then ask him to tell you the meaning, he would think you were an imposter. In daily work problems are met which depend upon dozens of facts for their solution, which have never arisen in experience. Is it remarkable then that experience is the slowest and most difficult way of learning anything? In other words there is no relation to the various problems which arise in practical daily work. It is therefore impossible to easily understand them.

In taking up the scientific and systematic study of the important questions and problems arising in daily traffic work, we arrange them in their natural order, put them into progressive steps, and subdivide these steps into sections or elements. In other words we build up the structure of knowledge just as a brick-layer builds up a wall, cementing every new piece of information with illustrations and examples and applying the principles until everything is clear.

The Technical Information Required.

In order to present a thorough knowledge of the fundamental principles of Interstate Commerce and Railroad Traffic with their relations, the following technical information is required:

Division 1. Traffic Geography.
Division 2. Classification of Property for Shipment.
Division 3. Principles Governing Freight Charges.
Division 4. Application of Tariffs within and from the Official Classification Territory.
Division 5. Application of Tariffs within and from the Western Classification Territory.
Division 6. Application of Tariffs within and from the Southern Classification Territory.
Division 7. Application of Tariffs—State, Inland, Water, Canal, Export and Import.
Division 8. Construction, Publication and Reading of Tariffs.
Division 9. Special Freight Services and Allowances.
Division 10. Preparation and Routing of Shipments.
Division 11. Railroad Systems and Organization.
Division 12. The Bill of Lading Law.
Division 13. Express and Parcel Post Services.
Division 14. Traffic Department Organization and Management.
Division 15. The Interstate Commerce Law.
Division 16. The Interstate Commerce Commission.
Division 17. Procedure before Commissions and Associations.
Division 18. State Regulation of Common Carriers.
Division 19. Adjustment of Rates and Charges.
Division 20. Factors Controlling Trade and Commerce.

The necessary technical information covering all the principles must be conveniently presented in Technical Treatises each prepared by a Board of Experts. These treatises must contain the fundamental facts of traffic work, a knowledge of which is indispensable in solving daily traffic problems. These treatises should be printed in large type in order that they may be easily read. They should be always ready for spare moments.

Practical Experience on Paper.

The technical information presented in a practical traffic training course should be practically the same as that acquired in a life time of experience. It should represent the information of hundreds of traffic experts in every angle of the business.

The practical problems should show the application of rates between all the different traffic territories, on all kinds of shipments and under all different conditions. They should represent the "Boiled Down" information of men who have been in traffic work all their lives and are specialists in their lines.

The real training should consist of actual work in solving Practical Traffic Problems, in reviewing the criticisms made by the traffic instructors

assigned to correct the personal work, and by following the suggestions of the practical men who are in charge of the training.

A Little Knowledge—A Dangerous Thing.

Not long ago a so called traffic man with years of experience, directed a shipment of several carloads of oil from Kansas oil fields, to shipping points in Michigan and Ohio. The railroads billed the shipment to the Mississippi River Crossings on the basis of a 17½ cent rate, which had been their custom.

If this traffic man had known the jurisdiction of tariffs and the committees which control them, he would have known that a Western Trunk Line Tariff, published in Chicago, contained a rate of 12½ cents per hundred pounds, making a difference of $35 per car with a 70,000 pound minimum.

If he had been taking a shipment from Seaboard points to certain Western points, how would he have known that Sedgman's Differential, Ocean and Rail tariff might apply? It is impossible for any man to learn by experience that which does not come in his experience.

The traffic manager of the future must know how to solve accurately all the **Practical Traffic Problems arising** in the daily traffic work of all the leading industries and railroads. The most important traffic problems must be selected from the leading traffic offices in the country showing the application of the fundamental principles underlying their solution.

The Analysis of Railroad Tariff Types.

Freight tariffs are constructed on the basis of types. A large part of all tariffs is a repetition of these types. The interpretation of tariffs should be accomplished by requiring the student to make a careful study of these types or the differences in the tariffs. These types should be reproduced from the actual railroad schedules.

This plan of training has been worked out by many of the leading traffic experts in the country and **we believe that it is the only complete system for qualifying men for this important work. In no other way can men accomplish the best results.**

Thorough Knowledge of Every Angle Required.

A new type of traffic man therefore, is required to cope with present and future traffic problems. The traffic manager of the future must know every factor which enters into his business and be as thoroughly trained in his line of work, as is the lawyer, the doctor, the engineer, or the other members of the leading professions. All this necessary technical information must be compiled from the brains of practical traffic men, the only real source, and it should cover the following essentials:

Division I—Traffic Geography.

You should first make a general survey of "Traffic Geography" with special reference to the meaning of commerce and transportation. You then should take up those agencies which promote commerce. This should be followed by a study of the various freight services, giving the basis for transportation costs.

The next step should be a brief view of the Products of Commerce, including an understanding of their sources, and distribution of natural resources, also conditions affecting traffic services.

The establishment of freight charges on the various articles of commerce, in order to meet the wants of man, have given rise to the traffic territories and rate zones. The rate structures, therefore, at this point should be taken up with a view of showing the basis of the construction and application of freight tariffs, within and between all the traffic territories, rate groups and rate construction points in the United States and to foreign ports.

Division II—Classification of Property for Shipment.

There are about 25,000 different kinds of goods when differently **packed and described** offered for shipment in this country. It is estimated that there are 90,000,000 different rate combinations between all shipping points in the United States on any one article. It is obvious that it would be impossible to make a different rate on every one of the 25,000 different articles shipped, between every shipping point.

In order to meet this complex condition, railroads have found it necessary to classify articles by placing a large number of those having transportation likenesses under one class, and by charging a certain amount per hundred pounds for the shipment of all articles in a given class between any two given points.

The classification of articles is the first factor in determining the cost of their shipments. For this reason the next step in studying Interstate Commerce, Railway Traffic and Traffic Management work should be an understanding of the factors controlling Classification.

This subject covers all of the essential information in classifying all kinds of goods for shipment to all points in this country and to foreign ports. It comprehends a knowledge of the Nature of the Articles to be Classified; Principles of Classification; Comparison of Classifications and the Uniform Classification.

It should train men to classify a shipment in such a way as will result in applying the legal rate in the tariff. The reasonableness of classification should be taken up in the Division on the Adjustment of Rates and Charges.

Division III—Principles Governing Freight Charges.

After determining the classification of goods for shipment, the next important step is to learn the other factors, which enter into the computation of freight charges. Therefore the student should next take up Principles Governing Freight Charges.

This subject covers the various kinds of charges, the general construction of rates within and between the defined territories, and other information necessary in determining the basis of the legal freight charges under the Interstate Commerce Law.

At this point should also be taken up the twenty-one different kinds of freight rates and why they apply on various commodities. The information in this part of the work should give an intelligent basis for understanding the reasons for different kinds of rates in the tariffs and how to interpret and apply them.

Division IV—Application of Tariffs Within and From the Official Classification Territory.

Over half of the tonnage of the United States is shipped in that little section of the country known as the Official Classification Territory.

The application of tariffs in this section must meet all necessary commercial, industrial and transportation conditions. These conditions should now be taken up and understood in order that the student may know what particular tariffs have jurisdiction over shipments, moving within and from this territory.

This subject comprehends a knowledge of the Canadian, New England, Trunk Line and Central Freight Association territories, the Committees and Associations which control them; the Jurisdiction of all of their tariffs; or in other words, what tariffs contain the legal rates which apply on any shipment within and from this territory to all other territories in the United States and to foreign ports.

Division V—Application of Tariffs Within and From the Western Classification Territory.

As there is a direct relation between the tariffs applying over Eastern and Western roads, therefore, a study of the jurisdiction of the tariffs in Western Classification Territory should be the next logical step.

In this study the student should take up the jurisdiction of the Trans-Continental tariffs, the Western Trunk Line tariffs, the Trans-Mississippi and Trans-Missouri tariffs, the Southwestern Tariff Committee tariffs and the Pacific Coast Freight Bureau tariffs. He should also be given a clear understanding of the application of the tariffs within and from the Western Classification territory to all points in the United States and to foreign ports.

Division VI—Application of Tariffs Within and From the Southern Classification Territory.

Because of the river and ocean competition, also the keen competition with Trunk Line Roads in the Official Classification Territory, the jurisdiction of tariffs in the remainder of the United States or in Southern Classification Territory is an important matter.

To meet the many traffic conditions here the student should find that traffic territories have been established, each controlled by committees publishing tariffs having jurisdiction over shipments within and from their respective territories to all other points.

In this section there are the Southeastern Mississippi Valley, Southeastern Freight Committee, Associated Railways of Virginia and Carolinas, Sub-Atlantic, Sub-Montgomery and Green Line territories. All these should be taken up, together with the jurisdiction of tariffs published by the associations controlling them, giving a thorough knowledge of just what tariffs should be used on shipments originating in this section of the United States, destined to all other points in the country and to foreign ports.

Division VII—Application of Tariffs—State—Inland—Water—Canal—Export and Import.

Having determined the use of tariffs applying within and between the principal territories in the United States, the next logical step is to thoroughly understand Intra-state, Ocean, Canal Import and Export Rates and Tariffs.

This work comprises, both Intra-state distance tariffs. A study of the jurisdiction of tariffs applying to rail and ocean, rail-canal, rail-canal and lake, should be made.

Special attention should be given to the Panama Canal tariffs and tariffs applying to the principal ports of the world. Differential ocean and rail routes and rates should also be taken up and the student given a thorough knowledge relative to handling export and import traffic and all other matters incident to the application of ocean rates and services.

Division VIII—Construction, Publication and Reading of Tariffs.

The next logical step in the work is the analysis of a tariff. After having determined what tariffs legally apply, then the student is ready to learn how to accurately "Read a Tariff" or interpret it for the legal charge.

The Railroad Tariffs by recent acts of Congress have become the **freight rate laws of the country**. They must be constructed in accordance with the specifications of the Interstate Commerce Commission. Every item of rate information must now be placed in the tariffs in a defined manner and those who have a technical knowledge of just how and where rate facts are published are able to easily find, interpret and apply them.

Every different form in which important rate data is published should be studied and pointed out. Hundreds of type forms should be reproduced from the regular railroad schedules, together with practical examples of how to use them. Equipped with this technical knowledge, the student should be able to quickly read any tariff and determine the legal rate applying on a shipment. All factors which determine the legal charge must be published in the tariff. Without knowing what tariff applies or how to interpret it, the impossibility of determining a freight charge is apparent.

Dixision IX—Special Freight Services and Allowances.

What freight service is the shipper entitled to and what service is the carrier expected to render the shipper under the Interstate Commerce Law? This is the next step.

This subject takes up all those questions of car service, switching demurrage, milling-in-transit, ventilation, refrigeration, allowances, terminal services, private cars, discrimination, special privileges, etc.

Every freight service must be published in the tariffs. The student must learn what they are and how to apply them. These special services are necessary to meet various transportation, commercial and industrial conditions and they must be thoroughly understood by the traffic man. Many thousands of dollars are saved annually by large concerns and railroads which take advantage of these special services provided for in the tariffs.

Division X—Practical Methods of Shipping.

After having learned where to find the legal rates, which apply, how to compute them, and what freight services may be rendered, the student is ready now to prepare and route the shipment to destination.

This requires a thorough and practical knowledge of the methods of packing and marking shipments. The packing of the shipment is usually governed by the specifications in the classifications or tariffs having jurisdiction. But there are many other factors which enter into the efficient preparation of shipments. It may happen that it would be a saving of money to pay a higher rate and less money for packing equipment. The protection of the shipment from damages, must also be considered. All these matters should be thoroughly treated.

The routing of the shipment includes a knowledge of junction points, requirements of the tariffs, routing rules of the Interstate Commerce Commission, also how to properly execute the required shipping papers. A complete presentation of all this information must be given with its application to practical traffic work.

Dixision XI—The Railroads; Their Organization, Operation and Management.

For the first time in the progressive study have we come directly in contact with the common carrier or railroad and now the student should make a careful study of the organization, operation and management of railroads, the operation of the railroad traffic department, how freight equipment is moved, how the carriers handle freight, with a view of giving an intelligent idea of the manner in which the common carrier renders its freight traffic services.

The student should also be given a clear idea of the various Railroad Systems and their connections, also traffic statistics, revenues, expenditures and other available information which will eventually be necessary in rate adjustment cases when it is necessary to establish proofs of reasonable rates.

Division XII—The Bill of Lading Law.

We have now tendered the shipment to the carrier and have received a contract. What are the rights and duties of shippers and carriers under this contract or bill of lading? A careful study should now be made of the purposes, legal status, and law of the Bill of Lading, also the uniform Bill of Lading Law, which has already been accepted by many states.

It is important to give this subject careful attention as it has a very direct relation to claim litigation. The work should cover the common law principles in connection with the Bill of Lading.

Division XIII—Express and Parcel Post Services.

It may be best to make the shipment by Express or by Parcel Post. At this point the student should take up the principles on which the new Express and Parcel Post services are based. This should be followed by a study of the organization and development of express companies, express papers and forms, routes and express carriers, express classification, money classification, express rate zones, express tariffs and the computation of express rates.

The subject of parcel post rates and charges should be also carefully studied including a knowledge of mailable commodities, insurance and all matters pertaining to parcel post rates, also when express or parcel post rates make a lower charge for the same service.

Division XIV—Traffic Department Organization and Management.

The traffic man must systematize his traffic department for the purpose of accomplishing the greatest possible results in the least time and at the least expense. The next progressive step then is to make a careful analysis of the principles underlying traffic department efficiency.

This comprehends a study of the kinds of records to be kept, the securing and filing of tariffs, practical instruction to shipping clerks relative to preparing goods for shipment, the best methods of handling loss, damage and overcharge claims and the solution of questions relative to cartage, spotting cars, warehousing and forwarding agencies which take an active part in transportation.

Division XV—The Interstate Commerce Law.

A thorough study should now be made of the Interstate Commerce Law, its origin, purpose and spirit, also the essential features covered in the Act to Regulate Commerce. An analysis is made of each section of the law in connection with the decisions of the courts and commissions. Numerous Interstate Commerce Cases should be recited showing the application of the law to daily traffic practices.

The essential features of the law as it relates to legal and reasonable rates, discrimination, and the rights and duties of carriers and shippers under the law should be taken up in a thorough manner giving a practical and technical knowledge of the subject.

Division XVI—The Interstate Commerce Commission.

The next progressive step should be to attain a thorough knowledge of the purposes and duties of the Interstate Commerce Commission. This should comprehend the legal status of the Commission, the various bureaus, and departments. which have been organized to handle the work. the various reports and opinions of the Commission, together with suggestions as to the relation of the Commission to traffic affairs.

This work should comprehend the administrative and conference rulings of the Commission, the findings and aims of the Physical Valuation Board, the principles governing reasonable freight charges, the publications of the Commission and other information necessary in successfully accomplishing the maximum results.

Division XVII—Procedure before Commissions and Associations.

Practical methods of procedure in rate adjustment cases should now be taken up, together with concrete examples, rules of practice, and all necessary information for the purpose of attaining the most practical results.

The information given should qualify the student to utilize his knowledge of the rate structures and the Interstate Commerce Law in the preparation of formal and informal complaints to the Interstate Commerce Commission, State Commissions, or freight rate or classification committees.

Division XVIII—State Regulation of Common Carriers.

At this point the student should take up the state statutes, which regulates common carriers. The law which can be advantageously used in practical traffic work should be pointed out. As about 90 per cent of all shipments are interstate, it is not necessary to go into this subject in such detail as to burden the student, but the essential points must be given, so that the student may specialize along any line of state regulation which may interest him most.

Division XIX—The Adjustment of Rates and Charges.

One of the most important subjects in traffic work is the Adjustment of Rates and Charges under sections 1, 3, 4 and 15, of the Interstate Commerce Law.

The various principles recognized by the Interstate Commerce Commission as to the reasonableness of rates and charges should be studied here. An examination should be made of the commodity rate structures showing the application of the permanent decisions of the Commission, giving the foundation for preparing, filing and prosecuting rate adjustment cases.

Numerous examples should be cited and the student trained in preparing all the data for formal complaints in all the most important type cases.

Division XX—Factors Controlling Trade and Commerce.

This subject should comprise a study of trade conditions in domestic and foreign markets, how to export and import goods, foreign requirements as to American manufactured products, conditions controlling inland transportation in foreign countries and all information necessary for the development of foreign trade.

Our domestic commerce is growing about four times as rapidly as our population. The United States is furnishing a very small percentage of the goods demanded by foreign markets. It is obvious that a practical and thorough knowledge of the subject is of great importance.

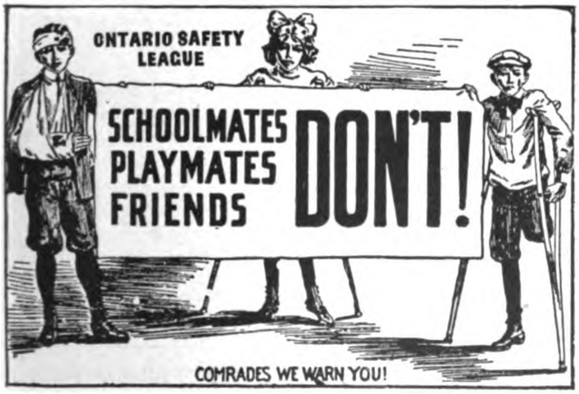
The opening of the Panama Canal has given us half of the population of the world as a new market. In this section of the work a careful study should be made of the essential factors governing trade and commerce, training the future traffic man to assist in developing business in new markets.

A practical traffic training course in Interstate Commerce, Railway Traffic and Traffic Management work as outlined here, cannot help but qualify a man to successfully cope with every important problem of freight, traffic, transportation, trade and commerce. This thorough training should qualify men for the important future duties which await traffic men of big traffic affairs. This is the nature of the course of training in traffic work which is offered progressive traffic men by the American Commerce Association.

Operation

Toronto Safety League.

A SAFETY league has recently been started in Toronto, Can., which could be followed with advantage by cities in the United States. The work of this league is almost entirely educational in character, and an effort is made to reach all classes of citizens and to show them that prevention is better than cure. Special attention is paid to the children who, as a rule, are generally the worst sufferers from traffic accidents. During the past year, the league



DON'T cross tracks without looking up and down.

DON'T "hook" a ride on wagon or sleigh, or car.

DON'T hitch your sled behind any vehicle.

DON'T skate, slide, or ride sleigh or toboggan across a street.

DON'T roller skate where there are car tracks.

DON'T play ball or running games on streets that have car tracks.

DON'T hold on to car, or wagon, or automobile, while riding a bicycle.

DON'T get off a car facing the back end of the car.

DON'T get on or off a car till it stops still.

DON'T cross the track close to the back of a car, you may be hit by a car coming in the opposite direction.

DON'T touch a loose wire hanging down on the street. Report such wires at once to a policeman or your teacher.

DON'T go near open sewers or other excavations.

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has sent out more than 6,000 letters to motorists, manufacturers and other users of the streets. With most of these letters were enclosed circulars and cards of instruction.

To the pupils of the schools of Toronto, 150 "Safety First" blotters were distributed. The word "caution" on the blotters reminded the children of the necessity for care, particularly on the streets. Rules for safety were printed on the covers of about 1,000,000 exercise books, note books and work books that the Board of Education distributed.

Numerous notices and signs have been placed in street cars, on bill boards, in shops and in other places, to direct the attention of the public to the end for more thought of safety. "Safety First" has been printed in red on poles at all stopping places of street cars throughout the city.

Results of Safety Efforts on the New York Central Lines.

THE accompanying map which has recently been issued by the New York Central Railroad east of Buffalo, shows the exact location of accidents on this road during the calendar year 1914. The letter "S" is employed to indicate places where fatal accidents occurred during 1913, and where no corresponding fatality occurred in 1914. The improvement noted is remarkable, and is a graphic illustration of the beneficial results of the safety movement as developed on this System.

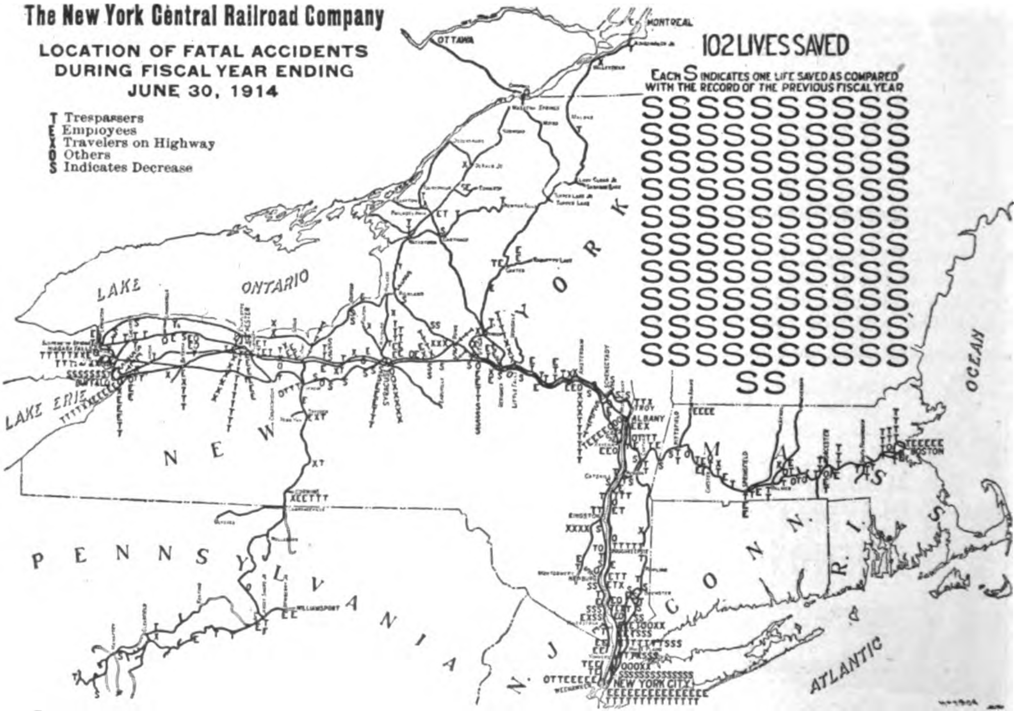
Effort to Increase Safety at Railway Crossings.

SAFETY GATES at highway crossings of the Baltimore and Ohio Railroad tracks hereafter will be painted white so that the most distinctive warning may be afforded travelers on state highways and other thoroughfares in minimizing the danger of accidents. Notice concerning the adoption of a standard color for crossing gates has been issued to the forces throughout the territory served by this railroad in connection with its campaign conducted systematically for some time past of employing watchmen in uniforms to patrol many busy highway crossings and posting warning signs to protect the public. That nothing should be left undone in this direction, track walkers, laborers and other employes have been drilled in urging upon the public utmost caution in using highway crossings and requesting pedestrians to refrain from using the right of way as a thoroughfare.

The Baltimore and Ohio has signified also its intention to co-operate with automobile clubs, public officials and other interests by so displaying signs that those approaching the tracks will have timely warning. To the extent of the railroad's responsibility it will co-operate with Road Commissioners and other authorities in placing warning signs on public highways adjacent to the railroad, thus taking every precaution in the prevention of accidents.

Warning Device for Crossings.

THE Pacific Electric Company at Los Angeles, has recently installed an ingenuous danger signal device. On the lines of this Company the interurban cars attain great speed


The New York Central Railroad Company
LOCATION OF FATAL ACCIDENTS
DURING FISCAL YEAR ENDING
JUNE 30, 1914
T Trespassers
E Employees
X Travelers on Highway
O Others
S Indicates Decrease
102 LIVES SAVED
EACH S INDICATES ONE LIFE SAVED AS COMPARED WITH THE RECORD OF THE PREVIOUS FISCAL YEAR
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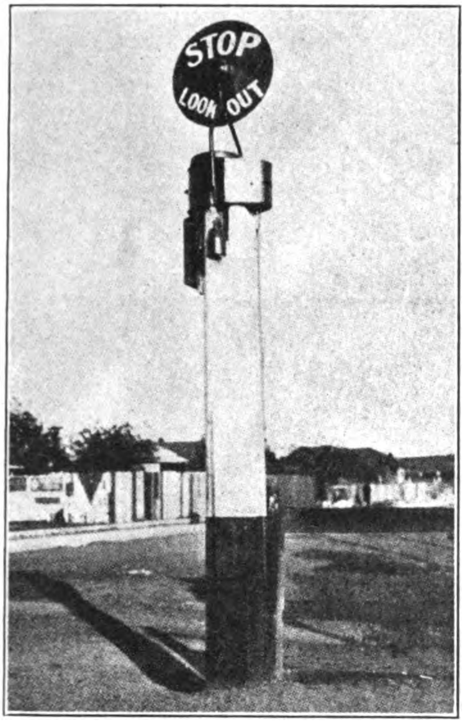
MONTREAL
OTTAWA
LAKE ONTARIO
LAKE ERIE
NEW YORK
PENNSYLVANIA
CONN.
R. I.
ATLANTIC OCEAN
ALBANY
TROY
BOSTON
NEW YORK CITY

Fac-simile of graphic map showing decrease in fatal accidents (indicated by S) which was one of the exhibits submitted to award committee in competition for Harriman Medal.



Electric Signal Used by a California Road at Railway Crossings.

after leaving the city and accidents were frequent until the signal was installed. It has proved itself to be a life saver and has diminished the number of accidents.

The signal is automatic. It waves a red flag and at night flashes a red light while a bell rings constantly as a car approaches and passes. It also illuminates the crossing.

Safety Pays on the Norfolk and Western.

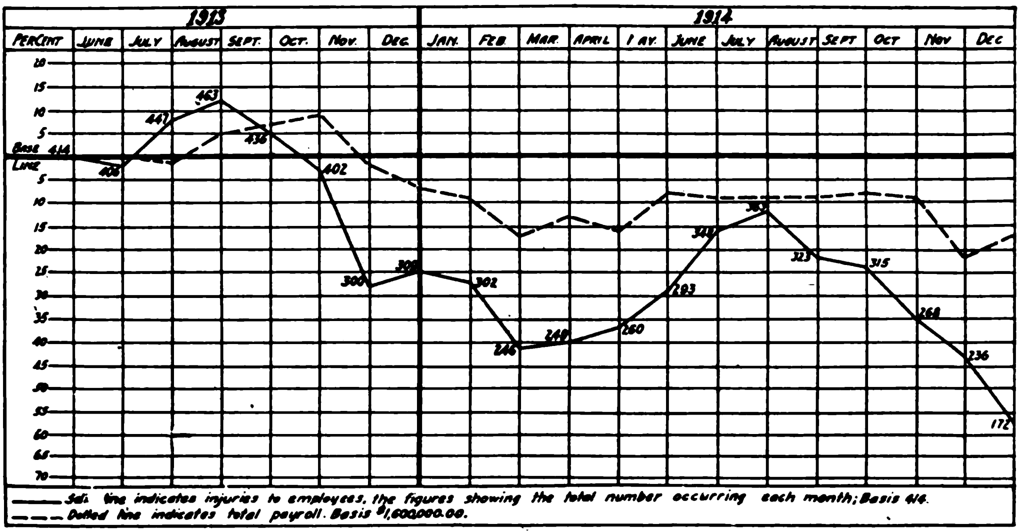
THE following diagram has been prepared under the direction of C. H. Blakemore, chairman of the Safety Commission of the Norfolk and Western Railway Company, as a concrete illustration of the value of organized work for accident prevention.

The numbers appearing along the solid line indicate the total number of employes injured each month, while the dotted line, representing the total payroll, gives a basis for a comparison of men employed to men injured as well as a comparison of the fluctuations of accidents with the general fluctuation of business. Merely to show that fewer accidents have occurred during one period than during another does not always prove achievement in accident prevention, because the less the volume of business and the smaller the payroll, the fewer the men exposed to injury; but the comparison given here is particularly interesting because it shows that real progress has been made.

From August, 1913, the high point, with its 463 accidents, to December, 1914, with its 172 accidents, there is a decline of seventy per cent. Based on the month of May, 1913, payroll and injuries are together, but gradually diverge, and at the end of 1913 the payroll has declined seven per cent while accidents have gone down twenty-five per cent, a gain of eighteen per cent in favor of the accident line; at the end of 1914. the payroll has declined to seventeen per cent, while accidents have gone down fifty-eight per cent, a further gain in accident reduction of forty-one per cent.

During 1913, a yard employe was injured for each $2,800 worth of yardmen working; during 1914, one yard employe was injured for each $4,600, an improvement of sixty-four per cent.

During 1913 a division employe was injured for each $6,600 worth of division employes working; during 1914 one division employe was injured for each $8,000 of payroll, an improvement of twenty-one per cent.



Fluctuation of total injuries to employes on the Norfolk & Western System for 20 months ending December 31, 1914, as compared with total payroll

During 1913 a line shop motive power employe was injured for each $2,600 of payroll; during 1914, one was injured for each $3,600, an improvement of thirty-eight per cent.

When the Safety Department was inaugurated by the Norfolk & Western System one employe was being injured for, approximately, each $3,600 worth of payroll. The last month covered by these figures—December, 1914—shows one employe injured for each $7,000 worth of payroll. This is a reduction of which the Safety Commission has cause to be proud.

Mechanical

Progress in the Construction of Hell Gate Bridge.

STEADY progress is being made in the building of the Hell Gate Bridge, which when completed, will constitute one of the greatest pieces of modern engineering. All of the piers have now been laid for the approaches of the structure to the water edge and the main great arch is beginning to spring across the river.

These approaches and the viaduct and bridge structures will be ten miles long, the three bridge sections 3½ miles long. Over this link between the New York, New Haven & Hartford Railroad and the Pennsylvania Railroad and its Long Island System, the New England passenger connection will be via Long Island City, thence under East River by tunnels to the Pennsylvania station on Manhattan Island, and thence under the Hudson by tunnels and on across Jersey and up and down the continent. By 1917 this connecting railroad bridge will link up a continuous all-rail route from Nova Scotia via New England and New York City south to Key West and the Havana ferry, and west to Frisco.

How prodigious are the feats being daily accomplished on the gigantic piece of work may be understood from the fact that one day recently on the Randall's Island section 1504 tons of steel girder spans were erected in eight hours. On the Bronx or mainland shore the temporary backstay and anchorage are completed, and the steel work from where the solid four-track structure rises from the New Haven Railroad tracks at 142nd Street to Little Hell Gate.

The cost of all will be $30,000,000, or with its four-track railway $35,000,000. That compares with other great bridges as follows:

	Cost	Span. Feet.
Brooklyn Bridge	$23,200,000	1595½
Manhattan Bridge	26,000,000	1470
Williamsburg Bridge	23,300,000	1600
Queensboro Bridge	17,900,000	1182
*Hell Gate	35,000,000	1016

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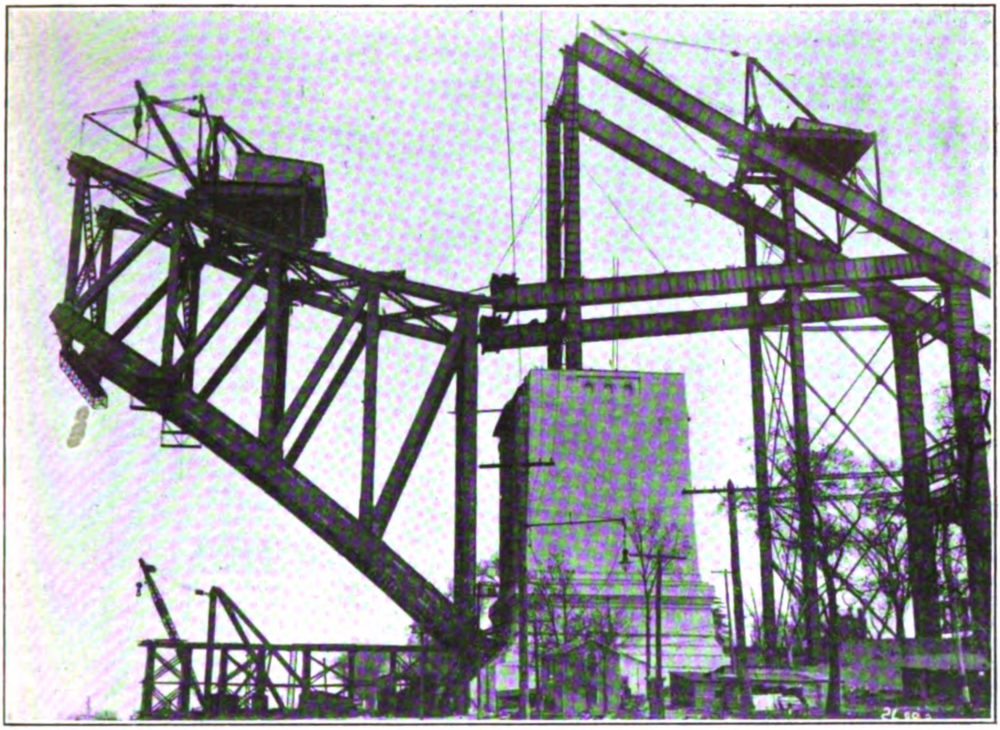
*The bridge and viaduct structures and appurtenances, total length ten miles, bridge length three miles, and length of arch over Hell Gate 1016 feet.

Nearly three years of the labor of 1000 men have already gone into the construction, and it cannot be completed before 1917. The entire work will require about 90,000 tons of steel (18,000 tons in the arch bridge alone) and 450,000 cubic yards of concrete, re-enforced with about 5000 tons of steel. Work was started in July, 1912; work on the Hell Gate arch towers was started in September, 1912, and on the viaduct piers on Randall's Island, Ward's Island and Long Island in February, 1913. Gustave Lindenthal, the chief engineer, gives these technical details:

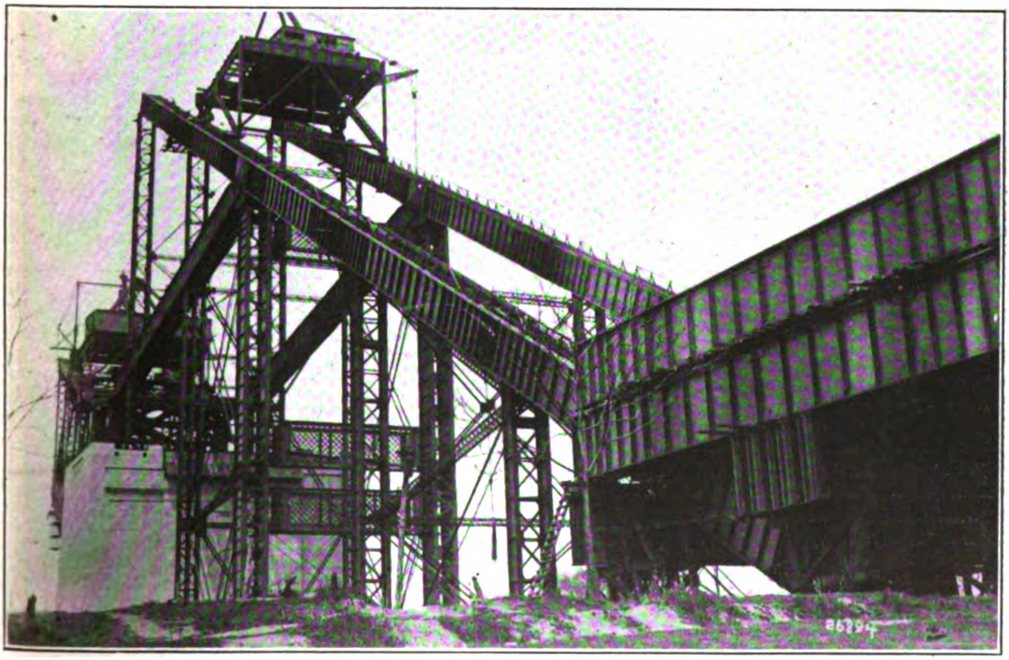
"The bridge over Bronx Kill is of the so-called

CONCRETE ARCHES CARRYING APPROACH TO MAIN SPAN.



Part of Huge Arch Under Construction. There are Thirty Tons of Steel in the Portion Beyond the Abutment.

lift type—that is, each half can be turned up to permit the passage of highmasted vessels. That over Little Hell Gate is of the eye-bar truss type, having four spans. Then the arch bridge crossing the East River at Hell Gate, one end on Ward's Island and the other on Long Island,



Anchorage at the Back of Span. This Anchorage, made of Steel which will Later Go into the Approach, is Merely Temporary.

is a single span bridge and will have some of the largest members ever manufactured. The maximum weight of a single member is 185 tons. The viaduct structures consist of plate girder spans supported on masonry piers. A portion of the viaduct structure is supported by concrete retaining walls with arches over the streets, and bridge and viaduct structures are from 20 to 130 feet above ground. The bridge is designed to carry a dead load per linear foot of 50,700 pounds, and a live load that is estimated at four tracks full of mogul locomotives.

The Test Department of the Pennsylvania Railroad.

THE Pennsylvania Railroad has one of the most complete test departments in the United States, and it keeps 350 men, including more than thirty scientists, testing the materials that go into everything the railroad uses.

The Department has only recently been housed in a structure in Altoona, costing with its equipment, more than $250,000, but the investment has made the Company the possessor of one of the largest and most complete plants in the world for making chemical and mechanical tests of materials.

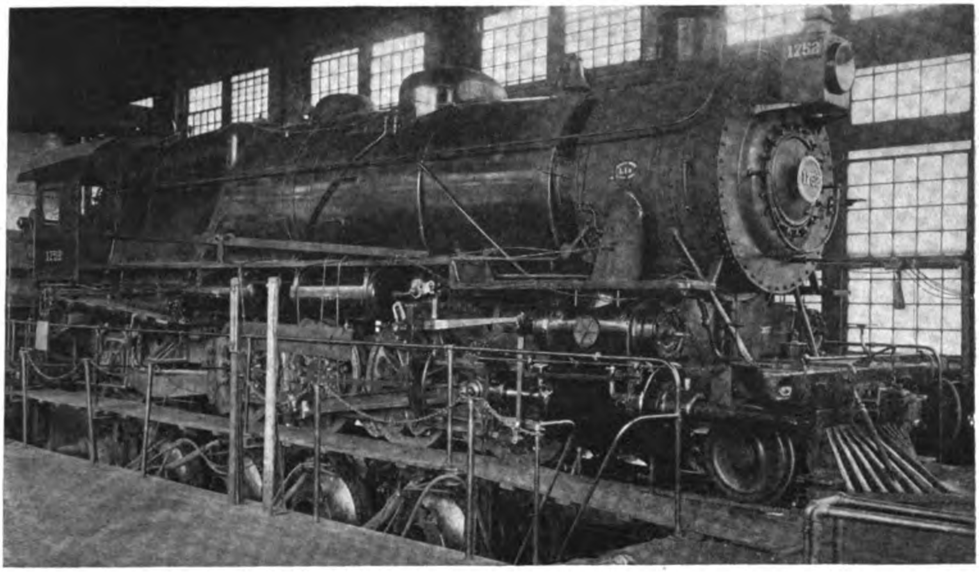
The Test Department, itself, is not new. Its work has been carried on since 1874. The Pennsylvania was the first American railroad to undertake the systematic testing of materials and supplies.

The railroad leaves nothing to guesswork, chance or individual opinion. All essential material that goes into rolling stock, roadway or structures, and upon the reliability of which human safety or wear-resisting qualities depend, must conform to certain standard specifications. None higher are known to the science of transportation.

Even the plush used in repairing car seats must have a specified number of threads per square inch in warp, woof and pile. The drinking water and ice supplied in cars must pass the microscope of a bacteriologist and be free of the germs of disease and of all suspicion of contamination.

Steel for rails, rail joints and plates; for the wheels, frames, axles, trucks, springs and sides of cars and locomotives, and for piston rods, cylinders, boilers and other engine parts, must stand a variety of tests for tensile strength, rigidity, hardness, toughness, elasticity, chemical composition, evenness of "grain" or internal structure, and for ability to withstand repeated bending, and temperature changes. For every test there is a rigid standard. When a sample falls below that standard, the lot it represents is rejected.

THE NEW QUARTERS OF THE PENNSYLVANIA RAILROAD'S TEST DEPARTMENT AT ALTOONA, PA. THIS BUILDING WITH ITS EQUIPMENT, WAS ERECTED AT A COST OF MORE THAN A QUARTER MILLION DOLLARS. IN THE COURSE OF A YEAR, TESTS ARE MADE BY THIS DEPARTMENT UPON WHICH THE ACCEPTANCE OF $80,000,000 WORTH OF MATERIALS AND SUPPLIES DEPENDS. THROUGH THESE TESTS, UPWARD OF A MILLION DOLLARS WORTH OF SUPPLIES ARE REJECTED ANNUALLY.



Trying out a $25,000 Locomotive in the Altoona, Pa., Test Shop. The Driving Wheels Rest on Heavy Wheels Revolving in a Pit, and by Applying Brakes to these Wheels, the Engine can be Given Work to do Equivalent to the Moving of a Train of any Weight. The Pulling Power Exerted is Measured by a Machine Known as a "Dynamometer."

Test work of one character or another is, of course, carried on at all of the Pennsylvania Railroad shops. Tests are a necessary and frequent incident of all careful shop work, but the standardization tests for the whole Pennsylvania Railroad System are performed almost entirely in the Test Department at Altoona.

Here is a year's work in six classes of tests; it gives some notion of the magnitude of the labor involved:

	Quantity Tested	Quantity Rejected
Steel castings (pounds)	77,700,000	500,000
Steel wheels (number)	128,000	4,000
Axles (number)	165,000	8,000
Bar Iron (pounds)	150,000,000	6,000,000
Air brake hoses (number)	635,000	85,000
Cotton waste (pounds)	3,800,000	400,000

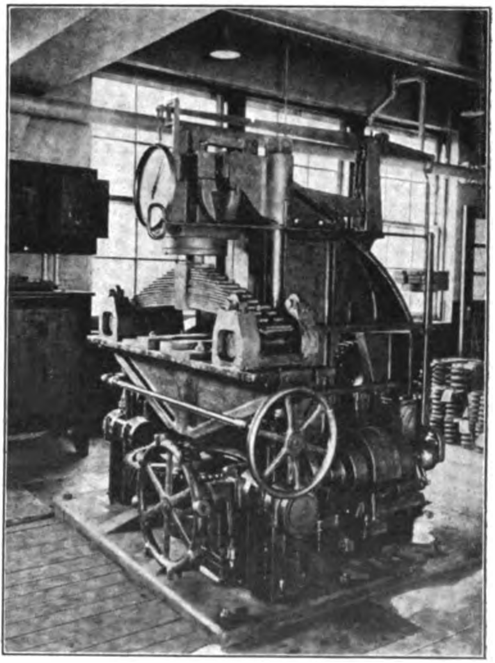
In the chemical laboratory more than 50,000 routine tests are made per year, involving over a quarter of a million separate determinations. Five to six thousand special tests are also made annually, involving 25,000 to 30,000 determinations. The steel section of the laboratory has facilities for analyzing 100,000 samples per year.

Over 3000 track torpedoes are tested in a year, and these represent 2,400,000, or more, that are supplied for actual use. More than 50,000 yards of plush are tested annually by examination of some 300 samples.

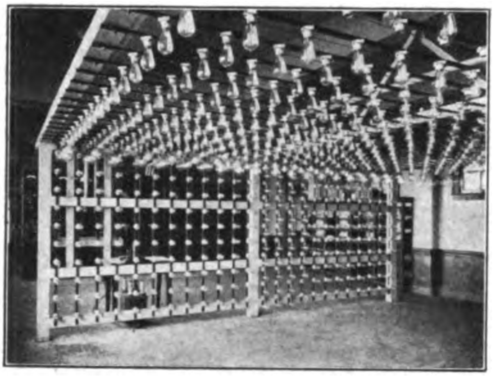
In 1913 there were inspected by the Department, and passed upon, while in the course of construction at the plants of railway equipment companies, 24,996 freight cars, 343 passenger cars and 190 locomotives.

The total value of supplies, materials and purchased equipment tested and inspected by the Department in a representative year exceeds $80,000,000, and the cost of making these tests is a little more than one-half of one per cent of that value.

One of the most important duties of the Test Department is to devise means for checking the inroads of age—to plan parts and invent materials of longer life, in order that the cost of every investment in car or locomotive may be



Machine for Testing Car and Engine Springs. This Powerful Apparatus Repeatedly Compresses and Releases the Springs in the Same Manner as Though they were Under a Heavily Loaded, Rapidly Moving Car or Locomotive.



Testing Electric Lights. The Arbor-like Device Shown has Facilities for the Testing Out of 1,000 Lamps Simultaneously. They are Tried for Durability, with Currents of all Intensities, from Less than Normal to Very Excessive.

spread over a greater number of years. Constant experiments are being performed with these objects in view.

Ingenious means have been contrived to make the tests as nearly as possible like the conditions of actual service. In doing this some unusual problems have been met and solved.

The huge machine first spoken of as being capable of tearing a slab of steel apart was designed principally for use in testing the tensile strength of heavy steel work. The direction of the machine's operation, however, can be reversed so that it crushes instead of rends. When used this way, it can crumple up the frame of a locomotive as though it were pasteboard.

This machine everts a titanic push or pull equivalent to the combined power of 25 heavy freight locomotives working together on a level track.

Researches of a very different character into the qualities of steel are made by means of photography. In this work a small sample of the steel is taken, in the form of a cylinder about an inch in diameter and of equal thickness. One end of the sample is highly polished and then etched with nitric acid, to bring out the minute grain of the metal.

The sample is then sent to the micro-photographic room, where a small portion of the etched end is magnified some hundreds of thousands of times and photographed. The study of these photographs constantly enlarges knowledge of the causes of flaws, how they may be avoided and how the internal structure of metals may be improved and strengthened. About 25,000 photographic prints are made in a year.

The painting of the 6800 passenger and 280,000 freight cars of the Pennsylvania Railroad System is a serious item of expense. It is the aim of the chemists of the Test Department to produce better paints than have ever been made before and that will be as durable as is possible to make them. Paints are tested by coating panels of wood or steel and then exposing the coated panels to sun, wind, rain, snow and frost for months and years. These tests are now being conducted on the roof of the Test Department's new building.

A passenger car out of service is a liability, not an asset. It earns money only when it works. When it is idle, it is an expense. Interest on the investment never stops. It is the aim of a railroad management to keep its cars as nearly as possible continuously employed. Every day a car spends in the shops means a loss.

To cut this loss down to the smallest practicable limits, the Test Department several years ago took up the study of means to reduce the time required for drying a car after painting. The prospect of successfully solving the problem was not very bright, as previous experience had shown that quick-drying paints were much less durable than those needing two days or longer to dry. Finally, however, experiments were tried with baking the slow-drying paints. The results, thus far, give every promise of success.

A mammoth oven has been constructed into which the largest car can be run. The doors are tightly closed and the temperature is raised above the boiling point of water. In three hours the paint is completely dry and hard and the car ready for service. This process has reduced by 95 per cent the time required for drying and by 50 per cent the time a car is held out of service for the entire operation of repainting.

The first tests of oven-drying paint were made about two years ago. The present condition of the paint on the cars used in those tests indicates strongly that the artificially dried paint is more durable than that dried in the ordinary manner in the open air.

The new building in which the Test Department is now housed at Altoona is five stories high, 160 feet long and 50 feet wide. It has approximately 41,000 square feet of floor space and 7,000 square feet of roof space.

The roof is used for photographic purposes and for the tests of paint durability. In addition, a complete weather station is maintained. The weather observations are furnished to the United States Weather Bureau in Washington.

All of the machinery in the Test Shop is electrically operated with power from the main power plant at Altoona. For experimental purposes in the testing of electric lamps, and similar uses, current is furnished from a large storage battery of 350 cells, controlled by an elaborate switchboard, by which current of any intensity from one to 350 volts may be obtained. A huge lamp test-rack, much resembling a grape arbor,

Testing Room for Water Employes on Passenger Trains. More than 600 Such Tests are Made in this Department Every Year.

Micro-Photograph Apparatus Employed to Obtain Greatly Magnified Photographs by which the Internal Structure of Steel may be Studied.

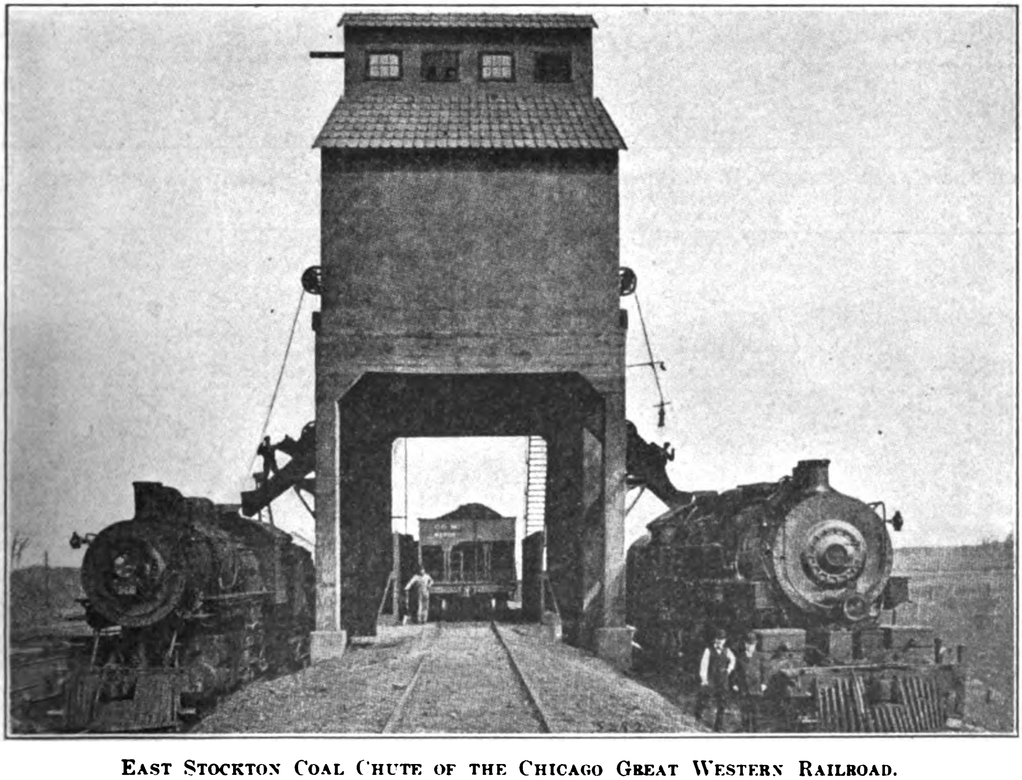
provides facilities for testing 1000 lamps at a time.

A new addition to the facilities of the Test Department, and one which is expected to prove an important time-saving device, is the chemical test car—a fully equipped laboratory on wheels. The car has just been completed. It is designed especially for the purpose of making tests and inspections of steel rails at the point of manufacture.

When in use, the car will be moved to a mill where rails are being rolled, and chemical analyses will be immediately made of the finished rails. The work will be done by a force of chemists under the Chief Chemist of the Pennsylvania Railroad. This procedure, it is expected, will avoid the delays which at times occur in the operation of the mills, and which cannot be avoided without having a sufficient force of chemists on hand during the rolling process to see that the chemical requirements of the railroad's specifications are complied with.

Interior of Chemical Test Car.

The chemical test car is the first and only one of its kind. It is an example of the Pennsylvania's initiative in the science of railroading.



East Stockton Coal Chute of the Chicago Great Western Railroad.

A New Coal Chute for the Great Western.

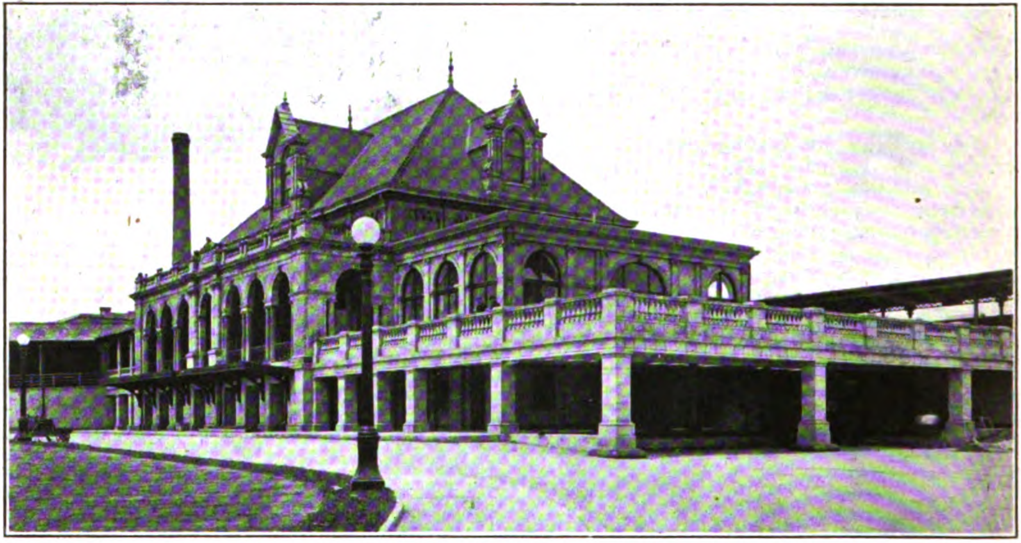
THE coal chute depicted on page 419 was built by the Chicago Link Company for the Chicago Great Western Railroad at East Stockton, Ill. It has two coal bins with capacity of 200 tons and a sand hopper with capacity of 20 tons. The sand is elevated from the drying house by air pressure. The coal is received from the mines in hopper bottom cars, dumped into a pit and then distributed by a shaker, run by electric motor, into buckets; these buckets, attached to an endless chain propelled by electricity, elevate the coal to the bins, which are so arranged on scales that the amount of coal delivered engines from the four chutes, two on each side, is weighed and registered by mechanical weighing device. As shown in the picture, two engines can be coaled at the same time.

Terminal Improvements

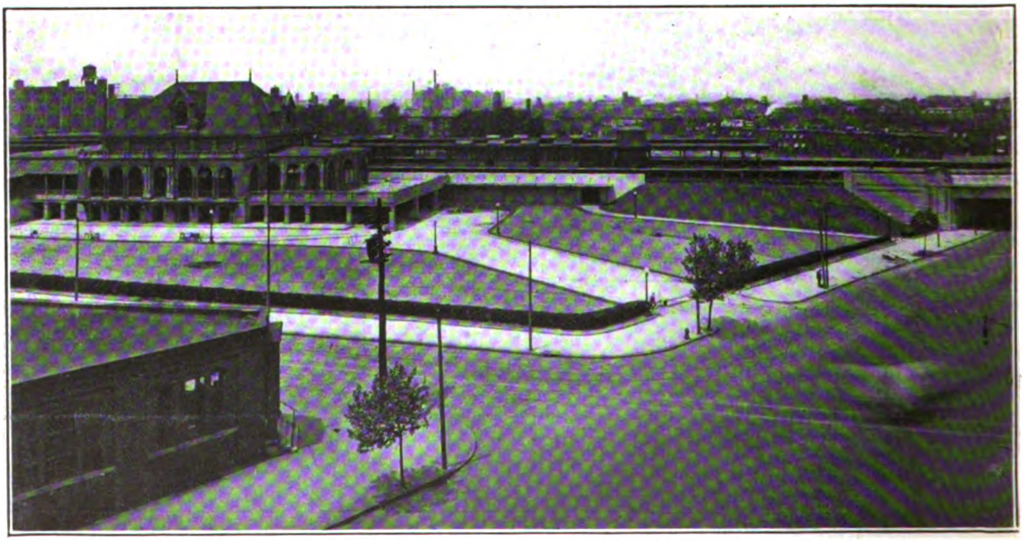
Pennsylvania Railroad's Improvements at North Philadelphia.

THE entire new North Philadelphia Station—a part of the comprehensive plan of improvement the Pennsylvania Railroad is providing in and around Philadelphia—was put in service on Sunday, May 23rd.

The station building at North Philadelphia has been entirely rebuilt, so that the ticket offices, baggage room and entrance lobby are now located on the same grade at North Broad Street, and



THE NORTH PHILADELPHIA STATION OF THE PENNSYLVANIA RAILROAD WHICH HAS BEEN REMODELED AND WAS PLACED IN SERVICE MAY 23, 1915.



A GENERAL VIEW OF THE REMODELED STATION SHOWING PARKINGS AND APPROACHES.

also on the same grade as the subway under the tracks leading in the island platforms. This eliminates the necessity of using any stairways, except those leading to the island platforms.

The former train floor level now provides space for a large waiting room, retiring room and lavatories, a restaurant and a soda fountain.

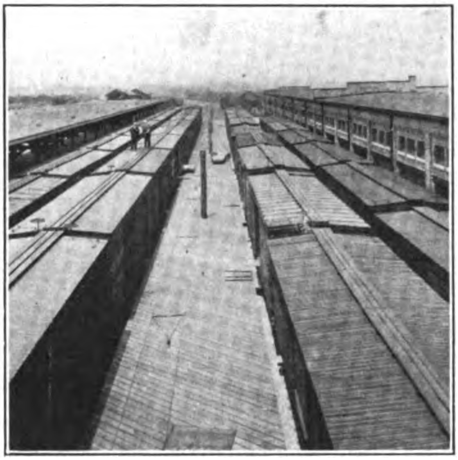
It was because of the growing importance of North Philadelphia as a station for through trains, as well as the very large increase in the number of Philadelphians using this station for the New York and Atlantic City trains, that the Pennsylvania Railroad decided to enlarge the facilities and conveniences for passenger trains at that point. Eight tracks, four of which are for passenger trains, two for eastbound and two for westbound trains, have been completed and are in service. Ornamental concrete bridges to carry eight tracks have been built over the Philadelphia and Reading Railway and over Broad Street.

Two island platforms are used by passenger trains, so that four trains, two in each direction, can stop there at one time. These platforms are all at the level of the train floors. This is the first station to be so constructed following the Pennsylvania Station in New York City and the Manhattan Transfer.

To avoid delay to freight trains because of these enlarged passenger facilities, two additional freight tracks have been provided in the vicinity of North Philadelphia Station.

The Southern Railway's New Freight Terminal at Mobile, Ala.

THE Southern Railway has recently completed terminal improvements at Mobile, Ala., commodious and conveniently arranged and offering the shippers and receivers of freight at this point, every necessary facility for the prompt and proper handling of their business. The terminal is so located as to be convenient both to the wholesale and retail business sections and there are separate warehouses for the handling of inbound and outbound shipments, served by four tracks arranged in pairs, with a ribbon platform between, and with an office section in front, running the width of the two warehouses and the tracks and platform between them. The house tracks have a capacity of forty cars. The building is in the shape of an inverted "U." It is constructed of brick on concrete foundation, tapestry brick having been used on the outside walls with pleasing effect.



Tracks between Inbound and Outbound Warehouses.

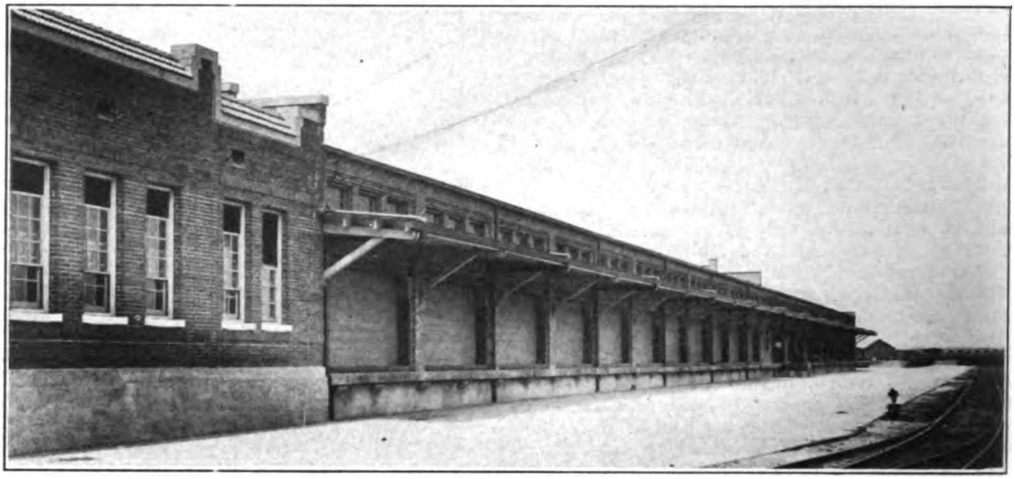
The inbound warehouse is 410 feet long and 42 feet wide. The outbound warehouse is 410 feet long by 32 feet wide, and the office section is 60 feet long by 142 feet wide. The ribbon platform located between the two pairs of tracks serving the warehouses is 410 feet long and 12 feet wide. There is a cotton platform 40 feet by 330 feet, a platform 40 feet by 60 feet for the unloading of automobiles and heavy machinery, and a transfer platform 600 feet by 8 feet.

Both warehouses are served by paved teamways and each has an overhanging roof so that freight may be handled regardless of weather conditions. The paved teamway on the inbound side is 1010 feet by 40 feet and serves the cotton and automobile platforms as well as the warehouses. On the outbound side there is a paved teamway 510 feet by 40 feet. The east side of this teamway serves a team track of 11 cars capacity.

The warehouses are provided with scales of the latest model and every facility for handling freight so as to avoid loss and damage. The office section of the building is well lighted and is so arranged as to allow the force to do the work with a maximum of convenience and dispatch. In it are located the offices of the agent and his force, the yardmaster, and the superintendent of the south end of the Mobile Division.

In addition to the freight warehouses the terminal consists of a storage yard with a modern 50-ton track scale and engine yard with modern

Front View of Station and Outbound Warehouse of the Southern Railway's New Freight Terminal at Mobile.



INBOUND WAREHOUSE AND PAVED TEAMWAY TO COTTON AND AUTOMOBILE PLATFORMS.

facilities for furnishing coal and water to engines and for handling cinders, two engine repair houses, two sheet iron offices and warehouse for the foreman of the car shops and the car repairer.

The terminal is complete in every respect and will enable Southern Railway to handle satisfactorily a much greater volume of business than it has ever been called on to handle at Mobile in the past.

These facilities are in addition to those the Southern Railway already has for the handling of import and export business through the port of Mobile.

New Storage Yards for Charleston, S. C.

IN Connection with its export coal terminals now being completed at Charleston, the Southern Railway has announced that it will construct a storage yard of four hundred cars capacity. No other road in the country has shown more activity within the past two years in the improvement of its service, particularly in its application to better terminal facilities. The Southern Railway is a firm believer of the opportunities for industrial and commercial growth in the southern states, and that it has the courage of its convictions, is well evidenced in its remarkable activity in improving and enlarging its transportation facilities.

The Grand Trunk Pacific's New Docks at Seattle.

NO water front structure was ever built in the history of Seattle with quite such precautionary measures against fire as are being taken at the new Grand Trunk Pacific dock, the substructure of which has just reached completion. The new dock will be ready for traffic in July, within a year of the time when fire destroyed the original structure. If it is within the power of the Grand Trunk officials to prevent it, fire will never again make such ravages in their Seattle property.

Just the length of the former structure, the new dock will have even a greater capacity, with improved arrangement and interior design. There are fire walls each 100 feet, and provision for sprinkler equipment. One of the unusual features is a hardwood driveway the entire length of the superstructure, composed of Australian ironwood.

When completed the new dock and buildings will take efficient care of the greatly increasing coastal trade which the Grand Trunk Pacific does with its fine fleet of steamers between southerly and northerly points, including Prince Rupert and Alaska.

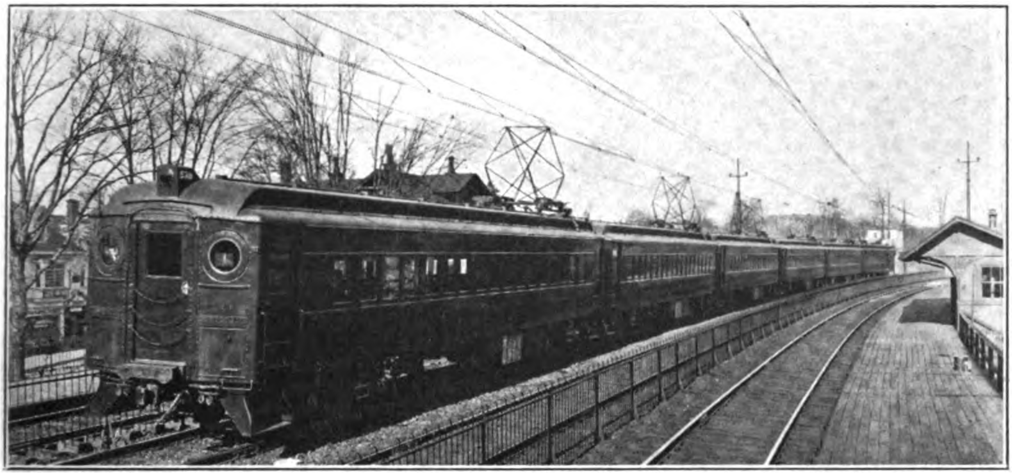
Electrical

Electrification Between Philadelphia and Paoli Nearing Completion.

THE establishment of electric train service by the Pennsylvania Railroad on or near July 1st, between Broad Street Station, Philadelphia, and Paoli, Pa., will mark the completion of another important step ahead in the art of safe and efficient railroading.

Both the public and the Company will benefit from the greater efficiency of operation that electric power will make possible. The direct money saving to the Company will be small, and will do little, if anything, more than pay the interest on the cost of the work. The chief good that will be accomplished, by increased efficiency, will be to add materially to the traffic-handling capacity of Broad Street Station.

How this will come about is easily explained. Broad Street Station being what is known as a "stub" terminal, a steam train, after arriving, cannot leave the station until a fresh engine, headed in the proper direction, backs in from the yard to what was previously the rear of the train. After the train departs, the first engine must back out to the yards and reverse on a turntable. If any change is to be made in the train, a switching engine must back in, haul



TYPE OF ELECTRIC TRAIN THAT WILL BE OPERATED BY THE PENNSYLVANIA RAILROAD BETWEEN PHILADELPHIA AND PAOLI, PA., WHEN THE ELECTRIC SERVICE IS ESTABLISHED IN JULY.

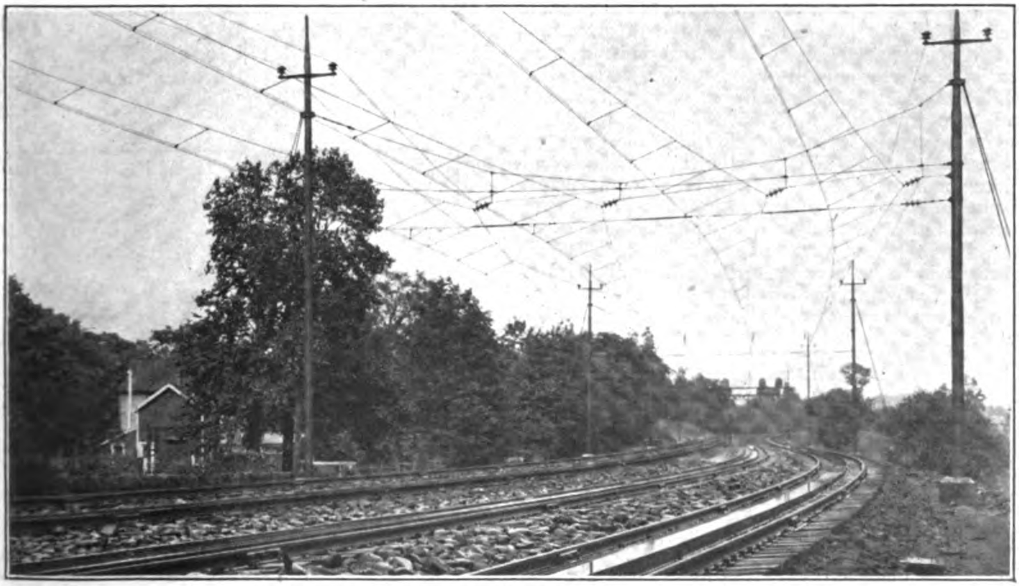
the train to the yard, break it up, reform it, and back it in once more.

Without going further into details, from four to eight such movements of train and engine must be made through the approach tracks for every steam train arriving at, and departing from, Broad Street Station. With electric trains, only two such movements are necessary, as the trains can move in either direction. All that is needed to reverse an electric car, or an entire train, is for the motorman to walk from one end to the other. When an electric train arrives at Broad Street Station, it will be ready to start back on the return trip as soon as the motorman can cover its length.

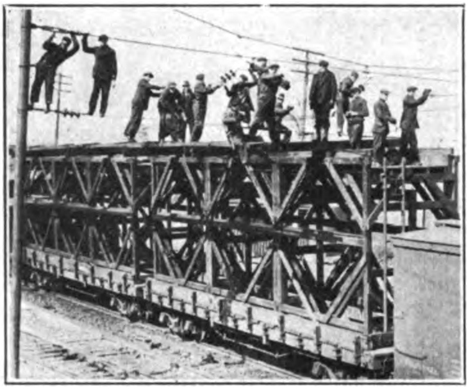
This greater ease of handling will not only reduce by about 15 per cent the number of train movements through the approach tracks during the rush hours, but will also greatly lessen the time during which the suburban trains occupy the terminal tracks in the Station proper. This will be another important aid in the prompt handling of passenger traffic at Philadelphia.

The secret of increased speed and more frequent service being possible with electric power lies in the fact that an electric train can be started and stopped more quickly than a steam train. Between Broad Street Station and Paoli there are nineteen stops in a distance of twenty miles. In order to maintain the present schedule, it is necessary to use very heavy and powerful locomotives—almost the heaviest used in passenger service—with small trains of three to five cars. This is to enable the train to gain speed very quickly after each stop. Otherwise the average speed would be very slow.

A local train running with steam power between Philadelphia and Paoli is practically either



"CATENARY" SYSTEM OF WIRES OVER CURVED TRACK.



How the Electric Construction Gang Works on Strong Scaffolding Erected on Flat Cars.

starting or stopping throughout the entire run. With electric trains, of the type to be employed, each car has its own motor and a long train gains speed as fast as a single car.

In order to permit the best possible schedule for passenger trains, it is planned to operate separate mail, baggage and express trains at frequent intervals throughout the day.

Instead of a single trolley wire, such as is used on street railways, the Company's engineers selected what is technically known as the "catenary" system of conductors. This device accomplishes two purposes. It makes the network of wires extremely flexible at all points and keeps the contact, or trolley wire proper, to all intents and purposes exactly level, or, on grades, parallel to the trade. This prevents destructive sparking at the contact devices on the trains, when running at high speed.

In the system adopted by the Pennsylvania Railroad, a double trolley wire is suspended from the catenary. The upper wire, which hangs directly from the catenary, is of copper. Beneath it, and suspended from it by clips about two inches in length, is the second, or contact wire, which is of a hard, durable alloy, known as "phono-bronze." It is from this second wire that the current is drawn into the car. The "phono-bronze" contact wire is shaped, in section, somewhat like a figure "8," the clips gripping the center groove. When worn out, the contact wire can be removed from the clips and a new one substituted with little difficulty, and without disturbing the remainder of the wire system. It is expected that the contact wires will last about ten years.

Power is to be received from the Philadelphia Electric Company and distributed over the electrified section of line by means of four sub-stations, located, respectively, at Arsenal Bridge, West Philadelphia, Bryn Mawr and Paoli. Current is delivered by the Philadelphia Electric Company to the Arsenal Bridge sub-station at 13,200 volts. It is there transformed to 44,000 volts, and carried in that form by the transmission wires. At the three other sub-stations the current is transformed down to 11,000 volts, which is the electric tension used on the trolley wires.

The cars which are to be used in the electric service are identical, save for their motor equipment, with the well-known type of all-steel passenger cars, adopted several years ago by the Pennsylvania Railroad for use on its suburban lines. Having a length of 54 feet, the cars will seat 72 passengers each. The motorman's compartment is simply the front platform with the door closed. The controller and brake, when the platform is open, are concealed behind a false door.

By what is known as the "master controller" the motorman, from his position at the front of the forward car, simultaneously controls the motors and air brakes on every car. The effect is the same as though there was a motorman on every car, each doing the same thing at the same instant. Similarly, the motorman controls the "pantagraphs" on every car.

At the top of the pantagraph is a steel "shoe" about four feet long and four inches broad, slightly rounded at the top. This shoe, which stands at right angles to the direction of the car, presses against the lower side of the contact wire, serving the function of the wheel on a trolley pole. It has the advantage of never running off on curves, owing to its width, and, strangely enough, of wearing the wire less than a wheel. The shoe is made of a soft steel. It will last for about 2,000 miles of use and can be replaced at a cost of a few cents.

An important feature of the operation of the cars is what is known as the "dead man's control." It is impossible to lock the controller handle in any position. The motorman must hold it in the proper speed notch against the pressure of a light, but sufficiently powerful spring. Should the motorman be stricken with sudden illness and relax his hold, the controller handle will fly back to the "neutral" point, the current will be shut off, and the brakes will be applied.

Every car can be operated in either direction, from either end, at four different speeds. By pressing a button the motorman can cause the pantagraphs on all cars to shoot upward and make contact with the wire. Pressing another button causes them to fall. Moving a small lever throws on the air brakes, simultaneously, on every car.

The air brakes are of the new "electrically actuated" type, which the Pennsylvania Railroad has recently adopted. This device permits the quickest possible simultaneous application of the brakes throughout the train, and results in the

Stringing Wires without Interrupting Traffic by the Employment of an Adjustable Bracket Projecting Over the Adjoining Track from Roof of Construction Train.

smoothest and quickest stops. Ability to make quick stops not only increases safety, but, on a line where the stops are very close together, is just as important, in maintaining a speedy schedule, as the ability to gather speed quickly at starting.

The new automatic block signal system, which has been installed on the new electric system is, as has been stated in previous issues, a distinct departure from any other type of signals heretofore used by any other railroad, American or foreign.

The principle of the new signals is the use, for both day and night, of rows of brilliant white electric lights, showing in sharp relief against a black background. These replace the moving arms of the semaphores used by day and the colored lights used by night, in the ordinary forms of signal systems.

The lights of the new signals are so arranged that by lighting the proper row, any position of the semaphore arms—horizontal, diagonal or vertical—can be duplicated. Each signal is equipped with a sufficient number of lights to be the equivalent of two semaphore arms.

To make the lights clearly visible, even against the brightest sunlight, the current used in the daytime is nearly four times as powerful as that used at night. With such distinctness do the lights stand out that they are easily seen, even in the clearest sunshine, for more than 4000 feet. So brilliant are they that, when the full current is turned on at night, it is possible to read large type by them as a distance of 1000 feet.

Each signal protects a block of track 3500 feet in length. A train passing a signal automatically sets it at "Stop." The "Stop" signal is a warning that there is a train somewhere in the block following the signal, and a second train is not permitted to enter that block until it is clear.

When the first train passes out of the block, the signal at the entrance to the block automatically changes to "Caution." The "Caution" signal always means one block ahead is clear, but the next one is occupied. A third position of the signal lights shows when two full blocks ahead are clear, and a fourth position when three or more blocks are unoccupied.

Under this arrangement, a motorman always receives notice of a possible "Stop" at least 7000 feet in advance, and always receives at least two cautionary signals before approaching a "Stop" signal.

The new signals are mounted on structural steel bridges which span the tracks and serve the additional purpose of "anchoring" the trolley wires.

Conditions Affecting the Success of Main Line Electrification.

W. S. MURRAY, consulting engineer of the New York, New Haven and Hartford, presented a most important and comprehensive paper on the above subject at the joint meeting of the Franklin Institute and the Philadelphia Section of the American Institute of Electrical Engineers, held in Philadelphia on January 20th. Space will not permit the presentation of Mr. Murray's full paper, but the following paragraphs, which are taken therefrom, will prove of unusual interest to all railway officials who have been following the development of electricity as applied to steam railroads. To quote directly from Mr. Murray's paper:

"Let me point first to the great underlying condition, apart from the engineering, construction and operating side, upon which the success of main line electrification, from a combined public and railroad standpoint, is founded: success is entirely dependent upon the density of traffic.

"A commercially successful electrification may be described as one which, through its agency, cuts the operating expenses of steam-operated territory, it has replaced to a figure whereby the savings effected are of an amount sufficient to justify the investment made.

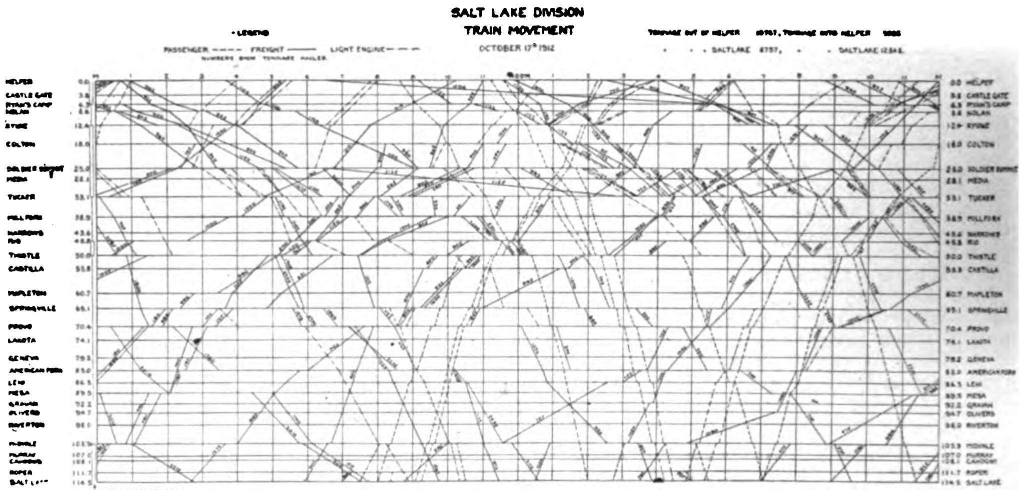
"Our experience to date has taught us that electrification points to three principal places where economy of operation can be secured, and in the order of their importance they may be mentioned as follows:

1. Saving in fuel.
2. Saving in motive-power maintenance and repairs.
3. Saving in train miles.

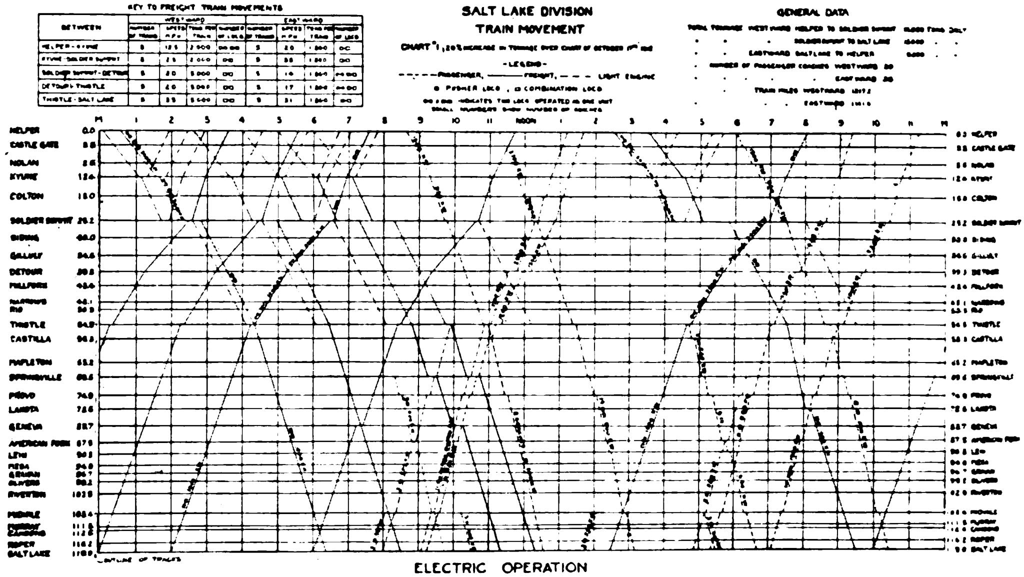
"Assets created by electrification, which may at times be controlling factors, as, for example, the reclamation of city terminal property, after the removal of gas and smoke by the elimination of steam locomotives, are of most important consideration. In cases, however, that do not involve large city terminal electrification, the general credits and debits resulting from electrification work may be said to about offset each other, and thus the value of the returns can be based upon the three items first mentioned. If we know the number of freight and passenger train miles in a division proposed for electrification, and the cost of each one of the train miles, to-day we can say with very little chance of error what the cost of each one of those train miles in freight and passenger service will be when that division is operated by electricity. If we were to duplicate the steam movment by an electric train movement a certain economy would be shown, but by reason of the ability to concentrate in single train movements greater tractive efforts and higher speeds, greater individual tonnages can be translated, and thus the third item of economy appears in the reduction of train miles.

"As bearing on the matter of a reduction in train miles through means of electrification, the three charts applying to studies recently made on the Salt Lake Division of the Denver and Rio Grande Railroad are interesting. In these charts it is of importance to note the great reduction in train movement secured by electrical operation, in combination with the reduction of a section of high grade from 4 per cent to 2 per cent for increases of 20 per cent and 100 per cent in excess of the former tonnage. The example offered is merely illustrative of this application of economy under conditions of electrification.

"Experience with the movement of billions of ton miles in freight, passenger, and switching service by electricity has justified the early predictions that were made in connection with the study of the New Haven electrification; namely, that one pound of coal burned under the boilers of a central electric power station and converted into electrical energy and transmitted to an



STEAM OPERATION



ELECTRIC OPERATION

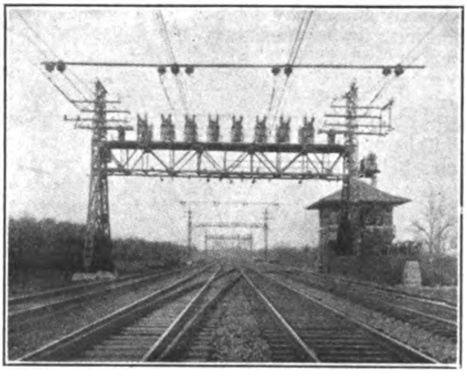
electric engine will develop twice the drawbar pull at the same speed as a similar pound of coal burned in the firebox of a steam locomotive; and second, that the maintenance and repairs on electric locomotives of the straight alternating-current type are on the order of one-half of those required for steam locomotives of equal weight on drivers. It is thus seen that the problem of electrification merely revolves around the question of the density of traffic in which the economies aforesaid can be practiced, and, therefore, the denser the traffic the greater the requisite motive power for its movement, and hence the greater the saving to be effected. If the schedule of train movement for all roads were the same, then, based upon the number of tons translated, it would be a simple matter to plot a chart which would show two intersecting curves, one of which represented the savings per annum to be effected by the substitution of electricity for steam, the other the summated cost per annum of interest, depreciation, maintenance, insurance and taxes on the electrical plant, inclusive of power-house, lines, locomotives, and shops, necessary to effect these savings, these curves having as common abscissa tons under translation and as ordinates the annual costs respectively represented in the foregoing classes of annual expenditures. The point of intersection of these curves would indicate the density of traffic at which the economic yield of electrification would cover the fixed charges incident to its installation. The curves would also indicate the yield to the railroad that electrification would bring above that of steam operation for traffic densities of greater amount. The analysis, however, is not as simple as this, for, while a number of roads might translate equal tonnages over equal distances, the local conditions might require a wide variation as to schedule; also such physical adjuncts as grade and most of electric power supply, labor and material clearly make it necessary to give careful consideration to each individual case. The

SIX-TRACK TANGENT COMPOUND CATENARY CONSTRUCTION ON NEW HAVEN LINE.

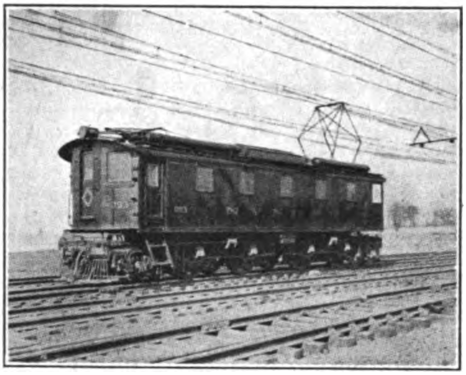
point which I wish to make, however, is that, with knowledge based on experience, operating officials of railroad companies can have an intelligent presentation made to them of the comparative cost relation between steam and electric operation for these several roads. An intimate acquaintance with the ways and methods of the steam railroads of to-day has taught us how the president, the vice-president, the general manager, the general superintendent, the mechanical superintendent, the division superintendent, the master mechanics, the road foremen of engines, the shop superintendent, and so on down the line to the engineers whose hands are on either the levers of the steam or electric engines, look at operation. Seven years of parallel steam and electric operation on the same division have opened up a world of perspective to the writer, as he has studied the controlling forces which whirl through the beginnings of this conversion from steam to electricity in the trunk line territory of our American railways.

"I would count it a serious omission indeed did I not mention the great and able assistance the present general manager of the New Haven Road, Mr. C. L. Bardo, has given in his study of the operating side of this great electrical problem. It is of him that I think when I touch upon one of the essentially real conditions affecting the success of main line electrification, and that is in the matter of administration. Electricity as an agent of power development is as essentially different from steam as the effects which are produced in the aplication of heat or cold. The steam locomotive has lived a useful life of eighty years. This is not a prediction that it will not live many more! Even in the clothes of its mechanical ruggedness it is not difficult to conceive of its having once been a pretty delicate machine, deserving of a very great deal of care and attention. The electric locomotive was born of even a more delicate nature, and, while its ruggedness is increasing, it can never possibly be the great mechanical brute that our high-powered steam locomotives may be typified as being to-day. In the same breath, however, it may be said that the steam locomotive can never reach into the zones of usefulness to which the electric engine can at the present day enter.

"It is perfectly possible to keep the maintenance and repairs of the electric locomotive down to one-half of those of steam under the most favorable conditions of steam maintenance, and in many cases below this figure. On the other hand, due to the peculiar nature of the electric engine, which has not as yet been enough appreciated, it will be only the most rigorous and careful inspection and conformity to rules of operation that this relation can be maintained. Indeed, if electric engines be treated as has been the custom of treating steam locomotives, then their repairs, instead of costing far less, will cost far more than those of the steam engine. The essential difference between the steam and the electric engine is that the former, after it has done all the work it is capable of doing, will lie down, simply stop going, and do this at no cost to its mechanical parts, while an electric engine, like an overwilling horse, if permitted, will work itself to destruction. The commercial life and efficiency of a steam engine may be said to depend on keeping the heat within its cylinder walls, while the commercial life and efficiency of the electric locomotive are based on how cool you can keep its conductors. In the vernacular of the American youth, some difference! Yet, if you ask the old steam superintendent operating the new electric division if he agreed to that distinction, the chances are he would say: "Sure, the conductors should never get hot, especially with a passanger." Mr. Bardo has recognized this great difference between steam and electric operation, and in handling the schedule of electric trains he has emphasized the importance of keeping the train loads down to a point within the safe temperatures of the electric motors performing the schedule. The days are passing when with pride the steam operating man points to the electric locomotive as having been able to perform twice the duty for darned old 'electric' blew up on half the load. The point to be established, therefore, is that successful electrification requires that there be in the administrative forces minds trained to the necessity of a different viewpoint from that which has come down through these eighty years of steam service. The magnificent organization that has shaped itself throughout these many years and has standardized itself, one might say, in its application to all roads, need not in any way have its fabrics torn or changed by the introduction of electricity as a motive power, but there must be established in the administration forces dif-



FOUR-TRACK TANGENT COMPOUND CATENARY CONSTRUCTION, SHOWING ANCHOR BRIDGE IN THE IMMEDIATE FOREGROUND.



Standard Straight Alternating-Current Freight Locomotive, Capable of Handling 1500 Tons at Thirty-five Miles per Hour.

ferent minds from those in the past to handle these different things of the future. The future must see well-developed electrical cells in the minds of the vice-presidents, general managers, general superintendents, etc., down the line.

"An inheritance by the New Haven of the old steam locomotive engineers for the operation of their electric engines is another case where the tail of the dog was the body. While it is a good argument that these men understand the roadbed and signals better than any one else, this argument fails when engineers without electrical experience or training can bid in the electric runs, depending upon their seniority and record of service. The condition might be alleviated by one set of men, once in remaining in, but there is a constant change, and it is a long time before the steam locomotive engineer divorces himself from the fact that he is not operating a steam locomotive. During his period of learning how to operate the electric engine he does not suffer, the people do not suffer, but the road suffers, and the locomotive suffers most. Here, therefore, we see the necessity of electrically trained men. The very logic of this stand will ultimately require that these things be so, and one of the successes of which we write in this paper is based upon it being made so.

"While all of the main line tracks of the New York Division are electrified, there still remains in passenger and freight service, as previously shown, a considerable amount of steam operation, made necessary by the New Haven Road having had to avoid capital expenditure for power-house and motive power equipment. It can be readily understood that a large reduction in operating expense can be effected when the division is placed upon a 100 per cent electrical basis. On previous occasions when the writer has been dealing with statistics and information made available by his engineering and operating association with the work he was conscious then, and is now, of the danger, in presenting construction and operating costs, of their possible misinterpretation.

"I have thought, therefore, that the broader manner of handling this subject would be not to show concrete cases where the conditions were such as to insure the success of electrification, but rather present the constants of economy that were generally applicable, at least very approximately so, to all railway situations, granting, of course, that each individual study would have its qualifying factors which local conditions would control; as, for example, it is quite possible for a complete electrification to turn upon the cost of coal. The greater the cost of coal the stronger is the argument for electrification from the fuel aspect. For example, if two railroads, one burning $2.50 coal and the other burning $5 coal, should electrify, and in each case reduce their coal consumption by 100,000 tons per year, they would respectively save $250,000 and $500,000 per annum. In the case of the railroad burning the $2.50 coal this saving would, at 5 per cent, represent capitalized values amounting to $5,000,000, while in the case of the railroad burning the $5 coal the capitalized values would be $10,000,000. In both cases the capitalized values should be credited against the construction account for electrification.

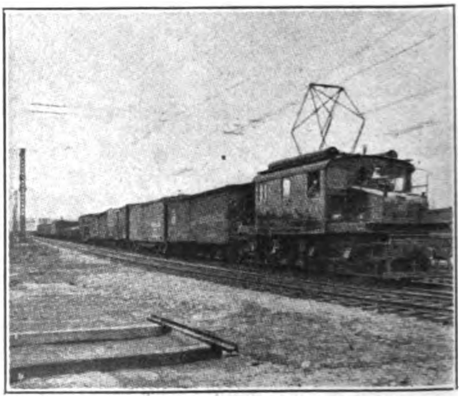
"The matter of savings to be effected in engine repairs is likewise subject to local conditions, for, while it may be said that steam locomotive repairs, upon an average, may be placed at 10 cents per locomotive mile, on the other hand there may be situations where the railroad has, for example, to use water of severe scaling characteristics and thus run up the cost of repairs excessively.

"In the matter of train miles the savings to be effected are dependent upon local conditions, but it can be stated as a general conclusion, based on a very considerable experience, that:

1. Electric engines on the order of 100 tons on drivers should be maintained at a rate not exceeding 5 cents per locomotive mile.
2. The coal bill for transportation is cut to at least one-half.

"Having determined for any situation what savings can be effected by the substitution of electricity for steam, then, as previously stated, the commercial justification of a change to the new motive power is entirely based upon whether these savings will cover the interest, insurance, depreciation, and taxes of the electrical investment necessary.

"In past papers I have refrained from presenting construction costs to show what investment is necessary to operate trunk line territory by electricity, and I believe that this policy will be accepted as having been justified in advising that an analysis of the distribution account of our latest line construction (between Stamford



Electric Switcher Locomotive Doing Regular Switching Service in Freight Yard.

and New Haven) shows its unit costs (four-track) to have been one-half of that incurred in the original work, and while further economies will, of course, follow, I feel that the curve of decreasing electrical investment for electrification has flattened at least enough to present Tables 14, 15 and 16, which follow, indicating the costs incident to six-track, four-track, two-track, compound and single catenary for curves and tangent construction as a guide to what can be done. To those considering these figures I would offer a word of suggestion that the overhead system of the New Haven Road was designed to co-ordinate with a roadbed which is the throat of the entire eastern New England traffic. Very high safety factors have been included in it, both as regards wire and steel, and it has been many times, particularly during the last season, subjected to high wind velocities, the effects of which have been augmented by ice formation, increasing its projected area.

"A general factor of safety of three is prevalent throughout the whole construction, whether on the 200-foot river transmission towers with 800-foot spans or on the regular catenary construction, in each instance based on ice coatings of ½ inch all around, with wind velocity of 60 miles an hour. I might add, also, that we have been fortunate enough not to have lost a wire due to the above causes throughout the history of the electrification.

"Briefly referring to the tables of construction costs, it is to be noted that the supporting steel bridges have a normal spacing of 300 feet, the trusses of which are designed to withstand the breakage of any of the main supporting messenger wires, and permit also the support at any point of four signals of 2000 pounds in weight each.

"As local conditions make different requirements for sectionalization, construction costs are given for continuous catenary construction for tangent and curved track, and, to facilitate the introduction of sectionalizing costs, individual figures for anchor bridge and control sectionalization are given under tables showing costs varying for the different number of tracks under consideration.

"Electrification, like everything else, under effects of standardization gets down to a pound or foot basis; the costs tabulated for the different types of construction, sectionalization and control may be combined to determine total estimates on work conforming to the requirements of the local conditions.

"With regard to electric motive power equipment, papers that have preceded this one have discussed in detail physical dimension, weight, and operating characteristics of electric passenger, freight, and switching engines and multiple-unit motor cars. The motive power feature of electrification, like its other parts, has virtually reached the pound stage. Electric locomotives of approximately 100 tons will, under present conditions of cost of labor and material, vary between 18 cents and 20 cents per pound. This figure is practically irrespective of speed-torque characteristics, a high-speed passenger locomotive and a low-speed switcher not varying greatly in cost upon a pound basis. Multiple-unit cars, now usually built of steel, do not vary greatly from the above figures, but, if anything, may be quoted as being slightly higher in cost per pound.

"The determining characteristics of the locomotives to be purchased in an electrification will, of course, entirely depend upon the local conditions which control the maximum and continuous tractive efforts in passenger and freight service, they in turn depending upon the weight of trains and length of grades, capacity of equipment depending likewise on the two foregoing factors and schedule requirements.

"The above approximate quotations on engine costs are presented merely to give a general idea of this department of expense in connection with electrification. As a concrete example in application of the above general statements, I would say that a first-class, high-speed, 100-ton, straight alternating-current electric passenger locomotive, capable of handling a 250-ton trailing load in normal large city suburban service, should cost $40,000. A steam locomotive which would do the same work would probably not cost more than $15,000, but the savings effected due to the greater operating economy of the electric engine would represent a figure of twice or three times the amount invested in the electric engine. Thus we might say that for every electric engine we purchase we would be justified at least in making a capital investment of $40,000 to cover the cost of electric power-houses and transmission equipment necessary to supply that electric engine with current. By this reasoning we again approach the answer as to the conditions affecting the success of main line electrification in the fact that it is the density of traffic and in the use of a large number of electric engines by which we can save enough money to pay for the capital expenditure necessary to the supply of power to them for the operation of many trains.

"Of late many interesting and valuable papers on electrification have been written, wherein the authors have presented comparable data as between steam and electric operation on specific territory under contemplation.

"As mentioned in the earlier pages of the paper, there are many places where electrification would bring a betterment both to the public and to the railroad, but the writer has thought the subject would be better served by a general exposition of his operating and construction experience in connection with a heavy trunk line electrification that has been serving the public for the past eight years, and to draw from it the significant facts and factors from which basic conclusions can be drawn to apply elsewhere.

"In concluding the paper I would plead for an especially conservative point of view on the part of the public with regard to electrification. While the savings to be effected under certain conditions of electrification may be considerable, on the other hand the construction investment necessary to these savings may be very great. So many roads in this country have either passed or lowered their dividends, the chief example of which being a part of the great Pennsylvania system, that it is hardly necessary to emphasize the fact that only a healthy condition of finance throughout the country will warrant the consideration of electrification, and again I would say that partial electrification, such as that applying to yards only and not main line, while it might prove of advantage to a public, might at the same time prove to be a serious and unfair burden for the railroad to carry.

"The Public Service Commissions are as much the guardians of the railroads as the people they serve, and the many billions in dollars representing the shrinkage in value of railroad securities in the last few years have awakened in the hearts and minds of the public and the commissioners the fact that no further obligations can be imposed upon the railroads, except that they be justified from a fair railroad business standpoint, such equity of treatment describing the duty of the commissioners in whose hands rests the justice of any demand. The electrification of great railroad terminals in particular presents conditions in which the maximum cost is combined with the minimum direct return upon the invested capital, and without some reasonable assurance of adequate return it will be more difficult to secure the necessary capital for such improvements."

Interstate Commerce Commission

Revised Rules Governing Monthly Reports of Railway Accidents.

ON May 17th, the Commission sent to the carriers and other interested parties, a revised tentative draft of rules governing monthly reports of railway accidents for the purpose of receiving criticisms and suggestions. If possible, the Commission desires these to be submitted within fifteen days.

The new draft differs from the one distributed under date of January 9, 1915, in that the number of forms is considerably reduced, only one form being provided for the several different classes of train accidents and train service accidents. The proposed requirement for individual reports of nontrain accidents has been withdrawn and only a summary statement of nontrain accidents is provided for in the report. The proposed summary statement of train accidents and train-service accidents has been withdrawn. A requirement for reports of rail failures resulting in train accidents has been added. The definition of reportable injuries to employes has been modified so as to make the minimum limit three days' incapacitation in the ten days following the accident, as is now in force. Numerous other, but minor, changes have been made which will appear upon a reading of the draft.

In making the revision, the Commission has had the benefit of the suggestions of the Committee of the American Railway Association, composed of Mr. Julius Kruttschnitt, Chairman, Mr. W. W. Atterbury, and Mr. W. G. Besler.

Ruling on Collection of Undercharges.

THE Commission, through its secretary, Geo. B. McGinty, has issued to traffic officers the following ruling bearing on the collection of undercharges:

In cases where the tariff rates have erroneously been fixed at too high a figure, or have been grossly and palpably unreasonable, and the full tariff charges have not been collected, it has been the practice of the Commission on the informal docket to authorize the carriers concerned to waive the collection of undercharges. Its action in that respect has been inspired by a desire to assist the easy settlement of minor cases, having been limited only by the requirements of the two conference rulings which read as follows:

"258. Waiver of Undercharges.—With respect to shipments that move on and after March 1, 1910, it will be the policy of the Commission not to authorize the waiver of any uncollected undercharge that is not brought to the attention of the Commission within 30 days after the date of the delivery of the shipment."

"432. Waiver of Undercharges.—Upon further consideration the time limit within which uncollected undercharges may be brought to the attention of the Commission for authorization of waiver is extended from 30 to 90 days. (Modifying Ruling 258.)"

It appears, however, that the concession thus granted has been much abused and overworked, both by carriers and shippers. Despite the plain requirement of the law that the carriers shall collect and the shippers shall pay the full amount of the charges as specified by the tariffs lawfully on file, the latter frequently refuse to pay those charges when they believe them to be unreasonable, and the carriers acquiesce in that course of action, hoping that the Commission will later authorize them to waive collection. Numerous instances have also come to our attention where just prior to proposed reductions in rates, shipments have been solicited and made upon the understanding that the full tariff charges will not be collected, and that the carrier will apply to the Commission for authority to waive collection of the resulting undercharge. Such practices are unlawful and work serious discriminations. It has therefore become necessary for the Commission to abandon its present procedure, and on and after August 1, 1915, no application on the informal docket for authority to waive collection of undercharges in connection with shipments delivered subsequent to July 31, 1915, will receive consideration. To give effect to that decision, the following Conference Ruling has been adopted:

> "—— Waiver of Undercharges.—On and after August 1, 1915, the Commission will not consider on the informal docket any application for authority to waive collection of undercharges in connection with shipments delivered subsequent to July 31, 1915, and effective August 1, 1915. Conference Rulings Nos. 258 and 432 are hereby rescinded."

New Bill-of-Lading to Conform with Cummins Law.

REPORTS from Washington indicate that no general advance in freight rates will be made by the railroads, because of the operation of the so-called Cummins amendment to the Interstate Commerce Act, which goes into effect on June 3rd, next. This amendment forbids the railroads inserting any limited liability clause in their bills of lading. It has been suggested that if the roads are to be held to their full liability they would have to increase freight rates to compensate them for the additional liability.

Southern roads have announced their intention to use a new form of bill of lading after June 3d which will conform to the law. Goods shipped on such bills of lading will be carried at the old normal rates. The Western roads have also filed a supplement to Western classification which contemplates the operation of the Cummins amendment, but which does not attempt to advance the normal rates on that account. One exception was noted, however, in the case of live stock.

The Western roads will continue to carry live stock at the normal rates after June 3rd, although the new classification provides that when the live stock is valued at more than an arbitrary value fixed by the road an addition of three per cent will be made to the rate per 100 pounds for each 50 per cent or froction thereof of additional declared value of live stock.

The new Western classification was filed with the Commission on May 1st and will go into effect thirty days thereafter.

Handbrakes Barred by High Court Decision.

THE Commission, in a statement issued by Commissioner McChord, declares that a decision recently rendered by the Fourth Circuit Court of Appeals at Richmond, in the Virginian Railway Case, is of great importance to railroads and their employes. The court unanimously affirmed a decisions of the District Court which makes it unlawful for a railroad to require brakemen to use the common handbrake to control the speed of trains while out on the road.

Chairman McChord says that the decision "is judicial recognition of the 'safety first' doctrine of the highest and utmost importance.

"Although the safety appliance act has been in force for many years, this is the first decision of an Appellate Court which construes the airbrake provision of the act to exclude the use of the handbrakes in the ordinary running of a train," says the statement.

"This decision, if sustained by the Supreme Court, will have the tendency to relieve brakemen from the dangerous work of handling brakes on the top of cars and from dangers arising in passing over the tops of cars of trains in motion.

"It must necessarily cut down the number of accidents and deaths arising from falling from cars and from being struck by overhead obstructions The number of employes killed and injured from those two causes for the year ending June 30, 1914, was: killed, 586; injured, 16,053.

"The text of the court opinion indicates that the length of trains operated on grades must necessarily be cut down so that they may be safely operated by the airbrakes alone."

"In the case just decided the railroad contended that it could not safely operate trains of 100 loaded cars down grade without the use of handbrakes to supplement the airbrakes.

"The court, however, held in substance that except in some cases of extraordinary emergency the use of the handbrakes to control the speed of trains is unlawful and if trains of great length cannot be controlled by airbrakes, then the length of trains must be made such that the airbrake control alone will safely suffice.

"The court in effect held that the words of the act requiring the speed of trains to be controlled by the engineer through the train brake system 'without requiring brakemen to use the common handbrake for that purpose' absolutely exclude the use of the handbrakes in the ordinary running of trains.

"The public is interested in this decision as a declaration that the requirement of brakemen to ride out on the trains on the top of cars and to run over the tops of trains from car to car to operate handbrakes, especially at night or in storms, is an unlawful exposure of these men to danger.

"It would seem that it would have a revolutionary effect upon the common practice of railroads in exposing brakemen to the perils of manipulating the old handbrakes on moving trains."

STATE COMMISSIONS.

New York.—Two important orders suspending rates on railroads and an extension of the use of mileage books on the New York Central are announced by the Up-State Public Service Commission.

At the time that the rates for mileage books were generally increased last fall the New York Central restricted the use of its thousand mile books to the lines east of Buffalo. This brought a complaint from the Randall Grape Juice Company, of Ripley, N. Y., and other patrons of the road in the State west of Buffalo. These complaints have now been settled without the necessity for formal hearings. When the complaint was served upon the Company it filed with the Commission a new tariff asking its thousand mile books good on the lines west of Buffalo to points within the state of New York. The complaints have informed the Commission that this satisfies their complaint.

The Commission has suspended the proposed regulations of nearly all the large carriers in this state whereby they proposed to make the shippers pay for temporary bulkheads and doors for cars in which vegetables, salt and bulk goods, other than grain were to be transported. The regulations are suspended until July 1st.

The Commission has also suspended until July 1st the proposed increases of commutation fares on the Long Island Railroad. A number of hearings have already been had in this case, and the rates in any event will not be allowed to go into effect until their reasonableness has been passed upon.

ORGANIZATION NOTES.

May Meeting of New York Railroad Club.—The New York Railroad Club held its regular May meeting in New York on the 21st instant. Mr. G. Lindenthan, Consulting Engineer, presented a paper on "Qualities of Good Steel Rails."

Annual Convention of Traveling Engineers' Association.—The Traveling Engineers' Association has recently published an attractive program covering their 23rd annual convention which will be held at the Hotel Sherman, Chicago, on September 7, 8, 9, 10.

J. C. Petty, President of the Traveling Engineers' Association.

The program not only contains a presentation of the topics to be discussed, but also presents excellent photographs of the Chairman of each Committee having the various subjects in hand as well as the President of the organization. Detailed reference is also made to hotel accommodations, entertainment, etc., and the whole program is so artistically and attractively arranged as to set a new standard for advance notices of this character.

The Pan-American Financial Conference.—The Pan-American Financial Conference called by Secretary McAdoo, at which delegates representing eighteen of the twenty Latin-American Republics were present, met in the Pan-American Building in Washington on May 24th. The opening address of welcome was made by the President of the United States. Besides the foreign delegates, more than one hundred American bankers and business men were invited by the Secretary of the Treasury to meet and confer with the distinguished Latin-Americans who included among their number, not only prominent financiers, but the vice-president of one of the Republics and a number of ministers of finance and ex-cabinet officers.

The conference was one of unusual significance and was borne of immediate and pressing practical questions which have emphasized the neglect of the financial and trade relations between the United States and Latin-America. While our trade with South and Central America, has been steadily increasing, it has been practically without any support of established steamship lines and with practically no banking facilities, prior to the present efforts which are being made under the Federal Reserve System. There is not a single regular American steamship service to any port in South America except to those of Venezuela and Colombia. Brazil, Chile, Argentina, Peru and Equador do not know the American flag on American vessels of commerce.

The conference was therefore, not only timely but of vital interest. Practical questions were the subjects of discussion and practical results were the aim of the meeting. In addition to the many splendid addresses made, the methods of procedure permitted of intimate and definite discussion of the problems of Latin-American countries. Practical work in round table talks was arranged for and in this way the delegates met a select number of prominent bankers and business men and discussed with them and explained, the practical problems of their own particular country. The results of these discussions were summed up and reduced to tangible measures in the open sessions which concluded the conference. It is believed that the meetings opened and cleared the way for sustaining and extending our relations with Central and South America in a way heretofore not even suggested.

There were a number of general meetings held at which questions were discussed of common interest to all the American republics. These questions were as follows:

1. The present financial needs in national, state and local governments; nature and character of public loans; how secured; rates of interest thereon; where such loans have heretofore been placed, and the price at which they have been sold; possibility of placing such loans in the United States; effect of the European war on public revenues and expenditures; relation of decline of public revenues to guarantees of payment of interest and principal.

2. The normal and financial needs of public service companies; present needs of such companies; character and nature of the bonds or obligations they have to offer; how secured, etc.; possible conditions of financing in the United States; effect of the European war on such companies; their financial condition and needs.

3. Normal financial needs of commerce, such, for instance, as credit facilities; direct or dollar exchange; possibility of adapting commercial credits in the United States to the needs of the countries of Central and South America; effect of European war on the financing of foreign commerce.

4. Transportation between the United States and the country or countries concerned; improved postal service involved in money orders, parcel post, etc.

Not only did the foreign delegates have an opportunity to consult with the bankers and other prominent business men who had been specially invited to attend, but the Chamber of Commerce of the United States, realizing the importance of the conference, issued a call for a meeting of their Executive Committee during the week, and in this way prominent business men from all sections of the United States were given an opportunity to meet and talk with the Latin-American representatives.

Annual Convention of International Railway Fuel Association.— The International Railway Fuel Association held its seventh annual convention at Chicago, May 17th to 20th, inclusive. The following papers, some of which will be reviewed in the June issue of the "Railway World," were presented and discussed:

1.—"Powdered Coal—Preparation and Use in Locomotive and Stationary Boilers," By W. L. Robinson.
2.—"Fuel Conditions in South America," By J. W. Hardy, Sales Agent, West Kentucky Coal Co.
3.—"Analysis of Dependent Sequence as a Guide to Fuel Economies," By Harrington Emerson, Consulting Engineer.
4.—"Smoke Prevention," By E. W. Pratt, Assistant S. M. P. and M., C. & N. W. Railway.
5.—"Standardization of Coal Preparation," By H. C. Adams, President, Jones & Adams Coal Company.
6.—"Fuel Stations," By Committee, Chairman, H. J. Slifer, Consulting Civil Engineer.
7.—"Relation of Mechanical Stokers to the Fuel Problem," By "Firing Practice" Committee, Chairman, D. C. Buell, Director The Railway Educational Bureau, Union Pacific Railway.
8.—"Fuel Oil for Locomotive Use," By G. M. Bean, Pacific Coast Representative, American Arch Company.
9.—"Waste of Fuel in Railway Stationary Plants," By Joseph W. Hays, Combustion Expert.
10.—"Storage Coal," By Committee.

Pittsburgh Traffic Club Nominations.— The Nominating Committee of the Traffic Club of Pittsburgh comprising J. F. Townsend, Chairman, W. B. Taffner, E. C. Sattley, A. R. Kennedy, John F. Lent, Wm. F. Morris, Jr., and H. C. Mitchell, have nominated the following candidates for the various offices to be voted upon at the June outing of the Club:

For President—Mr. William A. Sproull.
For First Vice-President—T. W. Bennett, Ralph W. Cooke, W. E. Whitemore.
For Second Vice-President—Charles B. Ellis, Edwin C. Jepson, John F. Lent.
For Secretary—D. L. Wells.
For Treasurer—James T. Neison.
Board of Governors (Transportation)—Edwin F. Austin, T. C. Beal, J. F. Constans, Charles W. Henry, J. C. Kimes, H. C. Mitchell Thomas B. Moss, Charles R. Phoenix, W. H. Townsend.
Board of Governors (Industrial)—Harold E. Harmon, William J. Herman, Floyd A. Higerd, W. T. Lowe, Charles McNicholl, E. R. Worcester.

Opportunities for Trade Expansion.—The Merchants' Association of New York has perfected plans for turning into practical account the opportunities offered by the San Francisco Exposition for increasing the foreign trade of New York City and State. The plan is embodied in the following letter which has been sent to all members of this organization:

If you are planning to visit the Panama-Pacific Exposition at San Francisco, and desire to make your stay there contribute to the expansion of your trade opportunities, especially in foreign countries, the Chamber of Commerce and The Merchants' Association, which are co-operating in this matter for the further upbuilding of the commerce of New York, are able to offer you facilities of unusual importance.

If small parties of six to ten men, each party representing a special trade, can be organized to visit the Exposition together, and the names of the members of each party and the time of leaving New York and arriving in San Francisco are registered with either the Chamber of Commerce or The Merchants' Association, or both, some days in advance of departure, the two organizatoins, acting in co-operation with the official representatives of the State of New York in San Francisco, will arrange that, upon arrival in San Francisco, each party will be received by the New York representatives. A meeting will then be provided for them with the official representatives of foreign countries, for the distinct purpose of consultation in regard to trade opportunities. This initial meeting would doubtless be followed by others arranged for by interested foreign representatives, and possibilities of valuable information as to the openings for American manufactured products, and in some cases actual orders, would naturally develop..

It would be important for each party in communicating with the Chamber of Commerce and The Merchants' Association to indicate in what lines of goods and in what foreign countries they are most interested.

This arrangement is the result of the recent visit to San Francisco of the Honorable Seth Low, president of the Chamber of Commerce, who, as official representative of Governor Whitman, dedicated the New York Building at the Exposition. Deeply impressed as he was with the beauty of the Exposition and of the delights of a visit to California, Mr. Low felt that a great opportunity for the development of American commerce would be lost if our business men simply visited the Exposition for pleasure and did not avail themselves of the splendid prospects it offered for more intimate commercial relations with foreign countries. Honorable Norman E. Mack, the New York Commissioner, heartily responded to Mr. Low's suggestion that the New York State Building be made helpful to the extension of the trade of New York; and it was agreed that upon his return to New York, Mr. Low should take the matter up with the Chamber of Commerce and The Merchants' Association with the purpose of organizing small parties from different trades to go to San Francisco together, where they would be brought in contact with important foreigners under the exceptionally favorable auspices of the official representatives of the State of New York.

It may be said that Governor Whitman has given his cordial approval to this arrangement.

If, therefore, you can organize a small group, or groups, in your line of business for this purpose, communicate with—

SERENO S. PRATT, Secretary,
Chamber of Commerce of the State of New York.
S. C. MEAD, Secretary,
The Merchants' Association of New York.

Results of a far-reaching and practical value are expected from this plan with which the Fair authorities are co-operating most heartily.

Merchant Marine Referendum.—The Chamber of Commerce of the United States has submitted a referendum to upwards of six hundred chambers of commerce, national trade bodies throughout the country representing about 300,000 business men, for the purpose of determining the sentiment with reference to the up-building of a permanent American merchant marine. All votes must be in by June 22nd, and the canvass will extend to every city in the Union.

In view of the nation-wide discussion which has preceded this referendum, the ninth in the history of the National Chamber, the questions submitted are of particular interest. The ballot is divided into two groups. First, organization members are asked whether or not they favor:

(I) The Government undertaking the purchase, construction, or charter of vessels for mercantile purposes, together with the operation of such vessels.

(II) Ownership of merchant vessels by the Government but with operation by private parties under leases.

(III) Subsidies from the Government sufficient to offset the difference in cost between operation of vessels under the American Flag and operation in the same deep-sea trades under foreign flags.

(IV) Subventions from the Government to establish regular mail and freight lines under the American Flag to countries in which the commercial interests of the United States are important, and to American dependencies.

In the second part of the ballot are set forth recommendations by the National Chamber's special committee on Merchant Marine, of which William H. Douglas, of New York, is the chairman and the other members are: Bernard J. Rothwell, Boston; Thomas L. Stitt, Chicago; John A. Penton, Cleveland; Edwin J. Clapp, New York; Ludwig Nisson, New York; and H. A. Black, of Galveston. Organization members are asked to favor or oppose the following:

(I) The creation of a Federal Shipping Board to investigate and to report to Congress regarding the navigation laws and to have full jurisdiction, under the law, in all matters pertaining to over-sea transportation.

(II) That the Government subscribe to the entire stock of a Marine Development Company with a capital of thirty million dollars, this company to have authority for seven years to lend, under supervision of the Federal Shipping Board, upon the security of first mortgages on merchant vessels, taking as evidence of this indebtedness bonds which bear a fair rate of interest and contain provisions for amortization, the development company to guarantee the bonds as to principal and interest and sell them to the public.

(III) That the Ocean Mail Law of 1891 be amended by lowering the speed for first-class steamers from twenty to sixteen knots and for second-class steamers from sixteen to twelve knots, and by making the compensation adequate to permit the establishment of lines of steamships carrying both mail and freight.

If at the expiration of 45 days—June 22nd, the date mentioned above—one-third of the voting strength of the National Chamber has been recorded and two-thirds of the vote thus cast represent at least twenty states, the questions will be recorded as having passed one way or the other and the Chamber will endorse accordingly. If, however, before the above mentioned time votes representing more than two-thirds of the voting strength of the organization membership are registered favorably or adversely to the propositions the results will thereupon be recorded by Elliot H. Goodwin, general secretary, as having been approved by the Chamber.

Possibly no question which the Chamber of Commerce of the United States has submitted to its members has been more widely discussed. As a result of the European war and the accompanying disturbance of ordinary means for ocean transportation, the Executive Committee of the Board of Directors late last summer authorized President Fahey of the National Chamber to appoint a special committee to consider means for up-building a permanent American merchant marine. Before taking this action the Executive Committee had participated last August in important conferences at the Treasury Department. At these conferences it appeared that not only the Administration but also representatives of commercial organizations sought a way for establishing the American merchant marine on a permanent basis.

On February 1st, the Committee made a report to the Board of Directors. This report was ordered to be submitted to the annual meeting. Subsequently, the minority report, signed by Professor Edwin J. Clapp, was filed. At the annual meeting, on February 4th, after the Secretary of the Treasury, William G. McAdoo, had spoken in advocacy of the pending bill for Government purchase or construction of merchant vessels and the senior Senator from Ohio, Theodore E. Burton, had spoken in opposition to the measure, the majority and minority reports were submitted. Much debate followed, resulting in a vote of 101 to 90 on a motion of the chairman of the committee, Mr. Douglas, that the Chamber at once adopt the Committee's views that Government aid is absolutely essential but that government ownership of merchant vessels as proposed in the Ship Purchase Bill, last winter, is wrong in principle. These views of the committee were the substance of the first two of six different points which it made in a summary of its report. The vote at the annual meeting, not showing two-thirds in favor of the motion was insufficient under the by-laws of the Chamber to determine its attitude. On a subsequent motion the whole report and all of its recommendations were ordered submitted to organizations in the membership for a referendum vote.

Annual Meeting of Railway Development Association.—The Railway Development Association held its annual meeting in St. Paul, Minn., on May 11th to 13th. Among the subjects discussed were The Cultivation of Irrigated Lands, The Growing of Various Farm Crops, Foreign Marketing of Food Stuffs, and Immigration and

Colonization with Respect to the Activities of the Industrial Department of the Railways. The proper care of livestock and other profitable farming features were also taken up.

The guest of honor at the annual dinner was Governor W. S. Hammond, of Minnesota, who spoke on the Methods Employed in the Development of its Commonwealth. Other speakers included former Governor A. O. Eberhardt, Allen D. Albert, who spoke on "Publicity," and Professor A. F. Woods, President of the Minnesota State Agricultural College, whose subject was "Agricultural Educational Work."

F. H. La Baume, of the Norfolk and Western Railway, President of the Organization, presided, while L. J. Bricker, Agricultural and Immigration Agent of the Northern Pacific Railroad, was Chairman of the Committee of Local Railroad Men, having charge of the Convention and reception of delegates in St. Paul. There was a large attendance and great interest manifested in the various topics discussed.

May Meeting of Central Railway Club.—The Central Railway Club held its regular monthly meeting on May 14th, at Buffalo, New York. The principal feature was a paper by Mr. S. S. Riegel, Mechanical Engineer of the Delaware, Lackawanna and Western Railroad on "Locomotive of Recent Development."

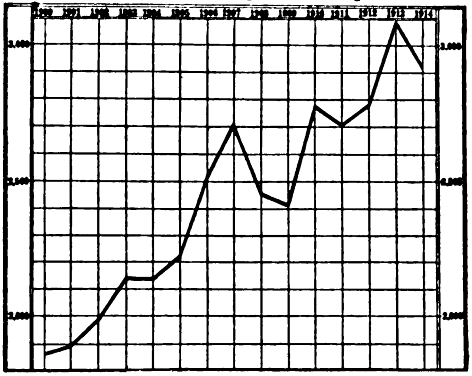
Annual Convention of National Association of Manufacturers.—The 20th annual convention of the National Association of Manufacturers was held in New York City at the Waldorf-Astoria Hotel, May 25th and 26th. Prominent manufacturers from all parts of the United States assembled to discuss the effect of the political and economical developments, internal and international, and their business. Notable addresses were made by William Howard Taft, former President of the United States and Senator Warren G. Harding, of Ohio. Mr. Taft's address dealt largely with the Clayton Act and James A. Emery of the National Council for Industrial Defense, outlined the work of the newly created Federal Trade Commission. There was also a general discussion of the effect of the activities of this body on the manufacturing industry.

It has been estimated by experts that the members of the National Association of Manufacturers supply about one-half of the world's railroad trackage and equipment, three-fourths of the world's means of telephonic communication, and the mechanical equipment, paper and ink necessary to produce one-third of the newspapers and magazines published on the globe. They also excel in the production of other staple commodities, manufacturing more shoes in one day than are produced by the leading foreign competitors of the United States in a week, producing eighty per cent of the automobiles of the earth, and gathering with machines made in their factories of the harvest of the world.

Enormous Increase in Freight Tonnage.

THE accompanying chart which appeared in the "New York Analist," shows the number of tons of freight moved one mile by the railroads of the United States for each person in the country. The enormous expansion of American industry is clearly shown by the fact that the amount per capita has grown from less than 1,900 ton-miles to more than 3,000 ton-miles since 1900. The business depression of last year accounts for the decrease from 3,096 ton-miles in the fiscal year ended June 30, 1913, to 2,916 ton-miles in 1914. The actual figures plotted in the chart follow:

1900	1,863	1908	2,455
1901	1,895	1909	2,416
1902	1,985	1910	2,767
1903	2,142	1911	2,706
1904	2,116	1912	2,768
1905	2,218	1913	3,096
1906	2,519	1914	2,916
1907	2,710		


Ton-Miles of Freight Per Capita

Changes in Train Schedules on Baltimore and Ohio.—On May 23rd, important changes of train schedules were made on all divisions of the Baltimore and Ohio Railroad, the most important of which were the shortening of the running time of the Interstate Special No. 8, by two hours from Chicago to Washington, and the operation of train No. 11, by way of Wheeling from Baltimore to Chicago Junction instead of from Baltimore to Pittsburgh. This train, in the future will be known as the "West Virginian." Trains No. 9 and 10, which for the last few months have been operated between New York and Pittsburgh, will be restored to the old runs between New York and Chicago.

LAND AND INDUSTRIAL.

Novel Industrial Campaign by the Lehigh Valley.—Something unusual, even in a campaign to develop an industrial center, appears in the latest issue of the general timetable folder of the Lehigh Valley Railroad. P. H. Burnett, the road's industrial commissioner, makes the interesting announcement that he has a tract of land with 300 foot frontage on the railroad which may be had absolutely free by a reputable concern ready to erect a plant and install a live industry on the site. The tract is described as being in the neighborhood of both Bound Brook and Manville, N. J., the latter 36 miles east of New York.

BOOK REVIEWS.

Railroad Field Manual for Civil Engineers.—By William G. Raymond, C.E., LL.D. Published by John Wiley and Sons, Inc., New York. Price $3.00 net.

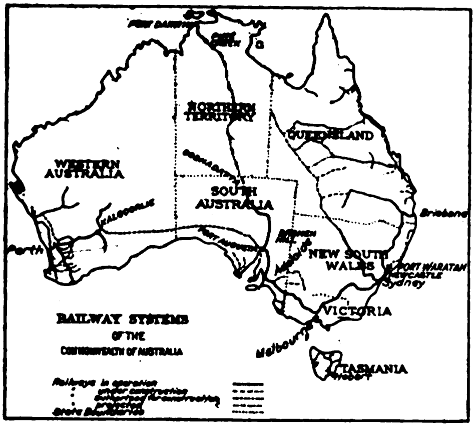
This field book has been prepared on a new plan and the decimal of the degree is used throughout instead of the minute and second. It is claimed that its use will save time both in the field and office, and lessen the liability of error. Its author is a man of experience in railroad location and railroad engineering. A complete set of tables is contained in the book for the solution of all problems in railroad field work. Brief explanations are also given of the common field problems, for the benefit of those not drilled in them by long experience.

FOREIGN RAILWAYS.

Australia to Make Her Own Steel Rails.

FOR a new railroad that is being built across Australia from Port Augusta to Kalgoorlie to connect the transcontinental lines, steel works have recently been opened at Waratah in the vicinity of the great coal fields at Newcastle and the Hunter River Valley, New South Wales. Hitherto, the Australian continent has had only one establishment for the reduction of iron ore and the production of iron and steel, that at Lithgow, also in New South Wales. The new works, which have been established by the Broken Hill Proprietary Company, which controls the famous silver-lead mines at Broken Hill, are situated on navigable waters. Expert workmen from foundries in the United States in increasing numbers have been engaged for the works at Port Waratah.

The establishment of these works is of interest to American business men, since it marks the first successful effort by Australians to make their own steel rails. The ore used comes from a hill known as Iron Knob, in South Australia, and the amount already in sight is estimated at more than twenty-one millions of tons. A good quality of coke is also obtainable from the coal fields of Newcastle nearby, while deposits of limestone are abundant. All that is necessary, therefore, for the development of a large iron business is present in New South Wales. Up to the present, by far the most valuable of the imports taken by Australia have consisted of iron and steel—bars, ingots, hoops, girders, wire. The new steel works at Port Waratah will be equipped for the production of all these.



AUSTRALIA'S RAILWAY SYSTEM FOR WHICH SHE WILL NOW MAKE HER OWN RAILS

Iron ore with a high percentage of metal is found in various localities in all the States of the Commonwealth. Australia has long known her capacity in this direction but has, so far, not been able to make use of the resources she possesses.

This new east and west railroad line will be supplied throughout its nearly one thousand miles yet to be completed with rails from this establishment. More than this. Another strategic railroad of almost equal length is projected by the Commonwealth Government, a second transcontinental line from Adelaide in the south to Port Darwin in the north, being part of this program. Approximately five hundred miles of this have been constructed, leaving twelve hundred yet to be built. For the building of this line, heretofore, the Commonwealth Government has obtained large supplies of steel rails from the United States. The Australian Federal Government has already begun to place orders with the new works at Port Waratah. The Railroad Commissioners of the State of Victoria have followed with orders for local consumption.

Although having an abundance of coke, limestone and iron ore, Australia has long been obliged, because she had no local reduction works, to depend upon other countries for her supplies of manufactured iron. Independence in iron manufacture is one of the basic necessities of national life, and Australian statesmen have long realized this. Evidence of this realization is found in the fact that the Commonwealth Government has recently set aside a bounty of $750,000 to be expended over a period of four years for the production of all kinds of Australian iron.

RESIGNATIONS.

Executive.

William Gerig, vice-president, treasurer, general manager and chief engineer, Pacific and Eastern Railway.

Albert H. Harris, vice-president, Michigan Central Railroad.

E. F. Kearney, president, Trans-Mississippi Terminal Company.

H. I. Miller, president, New Orleans Great Northern Railway.

Edward S. Moore, vice-president, Chicago, Rock Island and Pacific R. R.

H. H. Vaughan, assistant to vice-president, Canadian Pacific Railway.

Legal.

P. L. Williams, general attorney, Oregon Short Line Railroad.

Accounting.

D. E. Hedges, auditor, Tennessee, Alabama & Georgia Railroad.

S. H. McCartney, auditor of receipts, Missouri, Kansas and Texas Railroad.

C. J. **McNitt,** auditor, Oregon Short Line Railroad.

Engineering and Mechanical.

R. W. **Burnett,** general master car builder, Canadian Pacific Railway.

Operation.

Charles T. Banks, bureau of efficiency, Northern Pacific Railway.

W. W. Rabey, general manager, Mississippi Hill City and Western Railway.

Traffic.

J. F. **Blumensteil,** division freight agent, Detroit, Toledo and Ironton Railroad.

W. L. Chew, general claim agent, Texas and Pacific Railway.

F. R. Cornell, traveling freight agent, Wabash Railroad.

A. S. Edmonds, general agent, Missouri Pacific-Iron Mountain System.

M. D. Flanigan, general agent, New York Central Lines.

S. H. Hardwick, passenger traffic manager, Southern Railway.

F. N. Kellock, district agent, Pennsylvania Lines.

J. S. Talbot, general agent, Chicago and North Western Railway.

H. O. Wilson, general agent, Union Pacific Railroad.

Miscellaneous.

F. A. Wightman, member, Missouri Public Service Commission.

ELECTIONS AND APPOINTMENTS.

Executive.

E. E. Calvin, vice-president, San Pedro, Los Angeles and Salt Lake R. R. Headquarters, Salt Lake City, Utah.

Walter P. Cooke, president, New Orleans Great Northern Railway. Headquarters, Buffalo, New York.

George H. Crosby, vice-president, secretary and treasurer, Chicago, Rock Island and Pacific Railway. Headquarters, Chicago, Ill.

William E. Farris, third vice-president, New Orleans Great Northern Railway. Headquarters, New Orleans, La.

A. C. Goodyear, second vice-president, New Orleans Great Northern Railway. Headquarters, Buffalo, N. Y.

Charles I. James, first vice-president, New Orleans Great Northern Railway. Headquarters, Baltimore, Md.

H. I. Miller, president, Tennessee & North Carolina Railway. Headquarters, New York.

Henry W. Miller, vice-president, Southern Railway. Headquarters, Atlanta, Ga.

F. Nay, controller, Chicago, Rock Island and Pacific Railway. Headquarters, Chicago, Ill.

A. R. Ponder, co-receiver, San Antonio, Uvalde and Gulf Railroad. Headquarters, San Antonio, Texas.

Henry Russel, vice-president, Michigan Central Railroad. Headquarters, Detroit, Mich.

H. M. Sloan, assistant to receivers, Chicago, Rock Island and Pacific Railway. Headquarters, Chicago, Ill.

J. R. Stephens, assistant to the president, St. Louis, Iron Mountain and Southern Railroad. Headquarters, St. Louis, Mo.

B. A. Worthington, president, Lorain and West Virginia Railway. Headquarters, Lorain, Ohio.

Legal.

George H. Smith, general attorney, Union Pacific Company. Headquarters, Salt Lake City, Utah.

Financial.

W. G. Davidson, treasurer, Pacific and Eastern Railway. Headquarters, Portland, Oregon.

S. H. McCartney, secretary and auditor, Nevada-California-Oregon Railroad. Headquarters, Reno, Nev.

Allen B. Muller, acting secretary and treasurer, Texas-Mexican Railroad. Headquarters, Laredo, Texas.

Accounting.

G. J. Bunting, general auditor, Chicago, Milwaukee & St. Paul Railroad. Headquarters, Chicago, Ill.

D. E. Hedges, auditor and assistant treasurer, Tennessee, Alabama and Georgia Railroad. Headquarters, Chattanooga, Tenn.

M. A. Johnson, auditor of receipts, Missouri, Kansas and Texas Railway. Headquarters, Dallas, Texas.

E. N. Renfrew, auditor of miscellaneous receipts, New York, New Haven and Hartford Railroad, the Central New England and the New England Steamship Company. Headquarters, New Haven, Conn.

L. R. Wood, auditor, Oregon Short Line. Headquarters, Salt Lake City, Utah.

Engineering and Mechanical.

T. C. Baldwin, master mechanic, New York, Chicago and St. Louis Railroad. Headquarters, Conneaut, Ohio.

Sheridan Bisbee, fuel supervisor, Boston and Albany Railroad. Headquarters, Boston, Mass.

H. B. Cartwright, assistant engineer, Seaboard Air Line Railway. Headquarters, Jacksonville, Fla.

J. S. Cole, supervisor, Wabash Railroad. Headquarters, Montpelier, Ohio.

S. T. Early, supervisor, Wabash Railroad. Headquarters, Lafayette, Ind.

I. Lyell Gressitt, assistant supervisor, Bellwood Division, Pennsylvania System.

E. A. Hadley, chief engineer, Missouri Pacific-Iron Mountain System. Headquarters, St. Louis, Mo.

J. B. Hundley, engineer of bridges and structures, Cleveland, Cincinnati, Chicago and St. Louis Railway. Headquarters, Cincinnati, Ohio.

V. E. Hunter, general foreman, Texas Midland Railroad. Headquarters, Terrell, Texas.

J. R. Leckie, assistant master mechanic, Ontario Lines, Grand Trunk Railway. Headquarters, Toronto, Ont.

Harry A. Macbeth, superintendent of motive power, New York, Chicago and St. Louis Railroad. Headquarters, Cleveland, Ohio.

B. J. Schwendt, superintendent of telegraph and signals, Toledo and Ohio Central Railroad and the Zanesville and Western. Headquarters, Columbus, Ohio.

M. J. Scott, master mechanic, Alberta Division. Canadian Pacific Railway. Headquarters, Calgary, Alta.

W. C. Sealy, master mechanic, Ontario Lines, Grand Trunk Railway. Headquarters, Toronto, Ont.

O. E. Selby, principal assistant engineer, Cleveland, Cincinnati, Chicago and St. Louis Railway and the Peoria and Eastern Railway. Headquarters, Cincinnati, Ohio.

J. A. Shaw, general electrical engineer, Canadian Pacific Railway. Headquarters, Montreal, Que.

Charles W. Van Buren, general master car builder, Canadian Pacific Railway. Headquarters, Montreal, Que.

W. H. Winterrowd, assistant to chief mechanical engineer, Canadian Pacific Railway. Headquarters, Montreal, Que.

W. E. Woodhouse, chief mechanical engineer, Canadian Pacific Railway. Headquarters, Montreal, Que.

Operation.

D. S. Brigham, trainmaster, Boston and Albany Railroad. Headquarters, Beacon Park, Mass.

A. L. Christiansen, superintendent of car service, Elgin, Joliet and Eastern Railway. Headquarters, Joliet, Ill.

W. H. Davidson, trainmaster, Champlain Division, Delaware and Hudson Company. Headquarters, Plattsburgh, N. Y.

C. H. Doorley, superintendent of terminals. Elgin, Joliet and Eastern Railroad. Headquarters, East Joliet, Ill.

T. W. Evans, general superintendent. New York Central Railroad. Headquarters, Buffalo, N. Y.

George Johnson, superintendent. Pacific and Eastern Railway. Headquarters, Midford, Oregon.

John Kirk, superintendent. Gary Division, Elgin, Joliet and Eastern Railroad. Headquarters, Gary, Ind.

J. E. Lovejoy, assistant superintendent, Arizona Eastern Railroad. Headquarters, Phoenix, Ariz.

Paul McKay, assistant superintendent, Portland Division, Spokane, Portland and Seattle Railway. Headquarters, Portland, Oregon.

P. F. McManus, general superintendent, Elgin, Joliet and Eastern Railroad. Headquarters, Joliet, Ill.

J. L. Marquette, assistant superintendent, Chicago and Alton Railroad. Headquarters, Slater, Mo.

F. M. Metcalfe, charge of the Bureau of Efficiency, Northern Pacific Railway. Headquarters, St. Paul, Minn.

W. A. Milligan, acting superintendent, New York Division, Lehigh Valley Railroad. Headquarters, Jersey City, N. J.

H. Osborne, works manager, Angus Shops, Canadian Pacific Ry.

A. C. Ridgway, chief operating officer for the receivers, Chicago, Rock Island and Pacific Railway. Headquarters, Chicago, Ill.

Traffic.

Ralph P. Bowe, traveling agent, Chicago and North Western Railway. Headquarters, Cleveland, Ohio.

A. W. Bower, general agent, Chicago and North Western Railway. Headquarters, Indianapolis, Ind.

G. M. Bowman, commercial agent, Chicago, Milwaukee and St. Paul Railway. Headquarters, Cincinnati, Ohio.

H. S. Buefcher, general claim agent, Texas and Pacific Railway. Headquarters, Dallas, Texas.

J. L. Burnham, assistant general freight agent, Northern Pacific Railway. Headquarters, St. Paul, Minn.

John S. Campbell, district agent, Pennsylvania Lines and Union Line. Headquarters, Portland, Oregon.

L. R. Capron, assistant general freight agent, Northern Pacific Railway. Headquarters, St. Paul, Minn.

A. S. Edmonds, traffic manager, Chesapeake Steamship Company. Headquarters, Baltimore, Md.

Horace G. Emerson, commercial agent, Atlantic Coast Line Railway. Headquarters, Sumter, S. C.

H. A. Fidler, assistant general freight agent, Toledo and Ironton Railroad. Headquarters, Ironton, Ohio.

E. M. Finch, commercial agent, Atlantic Coast Line. Headquarters, Ocala, Fla.

J. N. Githens, assistant freight traffic manager, Missouri Pacific-Iron Mountain System and the Denver and Rio Grande Railroad. Headquarters, St. Louis, Mo.

Pendleton Goodall, commercial agent, Atlantic Coast Line. Headquarters, St. Louis, Mo.

J. E. Gorman, chief traffic officer for the receivers, Chicago, Rock Island and Pacific Railroad. Headquarters, Chicago, Ill.

C. R. Jones, soliciting freight agent, Atlantic Coast Line. Headquarters, Montgomery, Ala.

W. I. Jones, general freight agent, St. Louis, Iron Mountain and Southern Railway. Headquarters, St. Louis, Mo.

E. M. Jordan, commercial agent, Southern Railway. Headquarters, Selma, Ala.

J. G. Kensett, soliciting freight agent, Atlantic Coast Line. Headquarters, Tampa, Fla.

C. H. King, general agent, coal and ore department, New York Central Lines. Headquarters, Pittsburgh, Pa.

L. S. Kirby, traveling freight agent, Wabash Railroad. Headquarters, Toledo, Ohio.

P. J. McCarthy, assistant general freight agent, St. Louis, Iron Mountain and Southern Railway. Headquarters, Chicago, Ill.

J. C. McCutcheon, general agent, freight department, Northern Pacific Railway. Headquarters, Milwaukee, Wis.

E. M. Meagher, acting general freight and passenger agent, Buffalo and Susquehanna Railroad. Headquarters, Buffalo, N. Y.

James T. Neison, general agent, Missouri Pacific-Iron Mountain System. Headquarters, Philadelphia, Pa.

F. R. Perry, general agent, Canadian Pacific Railway. Headquarters, New York.

W. A. Rambacn, assistant freight traffic manager, Missouri Pacific-Iron Mountain system and the Denver and Rio Grande R. R. Headquarters, St. Louis, Mo.

C. C. P. Rausch, general freight agent, Iron Mountain System. Headquarters, St. Louis, Mo.

John Redding, commercial agent, Wabash Railroad. Headquarters, Toledo, Ohio.

J. C. Robertson, contracting agent, Missouri Pacific-Iron Mountain System. Headquarters, Pittsburgh, Pa.

E. H. Spence, general agent, Chicago, Milwaukee and St. Paul Railway. Headquarters, Pittsburgh, Pa.

E. F. L. Sturdee, general agent, passenger department, Canadian Pacific Railway. Headquarters, Boston, Mass.

Purchasing.

F. D. Reed, general purchasing agent, Chicago, Rock Island and Pacific Railway. Headquarters, Chicago, Ill.

E. J. Urtel, purchasing agent, Buffalo and Susquehanna Railroad. Headquarters, Buffalo, New York.

Miscellaneous.

C. M. Burt, vice-president, American Association of Passenger Traffic Officers.

Alexander Hilton, president, American Association of Passenger Traffic Officers.

W. C. Hope, secretary, American Association of Passenger Traffic Officers.

Safety.

F. A. Wightman, superintendent of safety, St. Louis and San Francisco Railroad. Headquarters, Springfield, Mo.

April Meeting of the New York Railroad Club.

THE April meeting of the New York Railroad Club was given over to a discussion of "Recent Developments in Locomotives." The address of the evening was delivered by Mr. George R. Henderson, consulting engineer of Baldwin Locomotive Works, who spoke largely on the economics and advantages of superheating in locomotive operations. He asserted that by combining the increase in boiler size and superheating benefits, an improvement of three to four times in the available H. P. is procured—a figures that harmonizes with the advances made in tractive force. In reference to other improvements in locomotives, Mr. Henderson made the following statements:

"Among the devices which operate for economy, a part save in fuel and a part in labor only, but the saving in fuel is also a saving in labor, although the latter—labor saving—is not always accompanied by a financial saving. Therefore, only the fuel economies result in a direct benefit in expenses, and the fireman gets the benefit of all—fuel and labor saving devices together.

"Compounding was one of the first radical methods of saving fuel, and this appeared in two cylinder compound locomotives. The low pressure cylinder soon assumed such a diameter, however, that it became impractical, and four cylinder compounds resulted, both as tandem, superimposed and balanced. The saving in fuel was about 20 per cent, but in some cases this was more than offset by the increase in maintenance. With articulated locomotives, however, the practical advantage of low pressure steam in the flexible pipe leading to the low pressure cylinders, is perhaps as great as that of fuel economy.

"The Triplex locomotive of the Erie Railroad is a six cylinder compound, the right high pressure cylinder exhausting to the two front low pressure cylinders, and the left high pressure cylinder sends its used steam to the two rear low pressure cylinders, the ratio of compounding being two, whereas in four cylinder compounds, the cylinder ratio varies between 2 4 and 2 8. The economy of a compound engine is produced mainly by the reduction of cylinder condensation, owing to the later cut-off used and the smaller temperature variations throughout the stroke.

"The economy in superheating is likewise produced by the reduction or elimination of cylinder condensation, in connection with the increased volume of superheated steam, as already explained. This can be accomplished in a simple cylinder as well as in a compound, and if we remove the cylinder condensation by means of superheat, we cannot expect to obtain in addition, the thermal advantages of compounding. In other words, having removed the condensation losses by superheating, there is no condensation left which can be removed by compounding. There are mechanical advantages in articulated and similar locomotives, which are sufficient to justify the combination and the reduction of pressure in the flexible pipes by this means is quite important

"The coal consumption with superheated steam is represented by the Locomotive Superheater Co. to be about as follows:

Deg. Fah. Superheat.	Lbs. Coal per 1 H. P. Hr.
0	3.5
50	3.4
100	3.3
150	3.1
200	2.7
250	2.2

"This indicates about 25 per cent saving at 200 degrees superheat, as shown in diagram 1.

"Feed water heaters have been used to a limited extent; they have been of various types, from heating the water in the tank to heating the injected water just before entering the boiler. If a pump is used to draw the heated water, there may be difficulty on account of the steam generated by the pump suction; this may be overcome by supplying the hot water under a head sufficiently great to prime the pump and allow for frictional resistance in the pipes.

"Water may be heated from 100 to 140 degrees in this way, at an economy of 10 per cent.

"Fire arches and similar arrangements also promote fuel economy, and while 10 per cent have often been claimed, we have set it in our statement at 5 per cent, as so much depends upon the arrangement and maintenance. In bad water districts, where flue trouble is excessive it may not be practical to keep arches in the fire boxes, as they interfere with access to the flues.

Summing up, then, these various modes of obtaining fuel economy, we must bear in mind that it will not be possible to realize the sum of the savings down, but that if we were to combine all of them in a single locomotive we might expect 35 per cent saving over a simple, saturated locomotive, without either feed water heater or fire arch. This is a large economy, however, and well worth the first cost of application and maintenance.

As the items just enumerated reduce the fuel consumption, they will reduce the fireman's labor in the same proportion. There are other means of reducing the manual labor, however, which do not bring a direct return for the money invested, except in so far as they permit a greater output of power, due to the reduction of labor per unit of power generated. Fuel oil is one of the most important of these methods, and while in some localities its price is prohibitive, yet in others it is actually a source of economy, being cheaper than coal. In general, it will permit about 25 per cent greater steam output from the boiler. Where the cost of fuel is too great, a mechanical stoker may be used, and by this means it is possible to put in the firebox twice as much coal as can be supplied by an average fireman.

"Coal pushers, fire-door openers, grate shakers, etc., seem rather trifling in themselves, but a trip on a large modern locomotive, where the fireman is supplying coal at the rate of 6,000 pounds an hour or 100 pounds per minute, will demonstrate the importance of utilizing all these adjuncts in order to get the best work out of the engine. It is a case where a number of small items produce a large result, both in the time saved and in affording greater conveniences to the men."

Mr. George M. Basford, chief engineer of the Railroad Department of J. T. Ryerson and Sons, followed Mr. Henderson. He spoke in part, as follows:

"In 18 years the steam passenger locomotive has increased three-fold in tractive power. In 16 years the freight locomotive has also increased three-fold in tractive power. The largest figure for indicated H. P. produced on the Pennsylvania Railroad Testing Plant, at the St. Louis Exposition 10 years ago was 1641. This was produced by New York Central Atlantic type locomotive, No. 3000 and was considered a marvellous record at the time. Published records of recent performance of a Pennsylvania Railroad Pacific type locomotive show 3184 indicated H. P. from the same testing plant at Altoona. Possibly this plant has produced a larger figure which has not yet been published. This statement reveals an astonishing increase in power. A record of 3580 indicated H. P. has been made by a very large freight engine at a speed of 15 miles per hour on the road. A prediction of these figures would have astonished everybody ten years ago.

"For the last five years boilers have been designed with reference to the steam required for maximum cylinder H. P. This method has replaced empirical formulae. Firebox design has greatly improved. Much has been done to increase the effectiveness of draft appliances and exhaust nozzles. Greater attention has been paid to enlarged air openings under the grates. Superheating requires no comment in this connection. Compounding has been worked out in connection with superheating with promise of still further development. Feed water heating has become a practical success. Fire Brick Arches have taken a place of great prominence in locomotive design and in operation, particularly with respect to combustion. The author of the paper specifically mentions 5 per cent as being creditable to the Arch. In this connection it is important to observe that the Arch contributes to the saving of the superheater and helps to secure the advantages of improved boiler design. These factors help each other. Mechanical stokers have become a necessity on locomotives of great power. Stokers certainly contribute to increased capacity in addition to the saving they may make. Improved valve gears help the cylinders in economy and in capacity. Labor saving devices for enginemen and firemen produce economy and increase capacity in that they enable enginemen to secure the utmost capacity out of an engine without additional effort. We are just beginning to consider the use of high grade alloy steels to reduce weights. They offer means of reducing static weights considerably, but more important is the possibility of reducing the dynamic effect of counterbalance weights by reducing reciprocating weights. Herein is a very fertile field for future endeavor. Yet to come is powdered fuel as the most promising possibility of the future.

"We hear much about improved economy of locomotives, but do not hear enough about the possible increase in capacity, which the improved economy permits. An improvement of 25 per cent in economy offers a theoretical increase of 33 1-3 per cent in capacity. As a convenient figure, assume 6,000 lbs. of coal per hour as a figure for coal consumption. If four lbs. of coal are required per indicated H. P. per hour our 6,000 lbs. of coal would generate 1,500 indicated H. P. If an economy of 25 per cent in fuel is effected 3 lbs. would generate a H. P. for an hour and 6,000 lbs. of fuel would then be good for 2,000 instead of 1,500 indicated H. P. This would be an increase of 33 1-3 per cent in capacity effected by an economy of 25 per cent in fuel. In other words, if one has $6,000 to spend for items of any kind which cost $4 each, he may buy 1,500 items for $6,000. If the price is reduced to $3 each, he can buy 2,000 of them —which means an increased buying capacity of 33 1-3 per cent for a reduction of 25 per cent in price. This is the ratio of the theoretically possible increase in capacity corresponding with 25 per cent improvement in economy.

"I hold in my hands records showing in actual service an average of 36 per cent saving in coal per ton mile for seven different railroads. This saving effected an average increase of 63 per cent in tons hauled per train. This represents the difference between very big modern locomotives with all modern improvements, as compared with smaller ones of earlier design without these improvements. In another case seven railroads show an average saving of coal per ton mile of 27 per cent, which led to 34½ per cent increase in load hauled per train, also representing big, new, modern engines, as compared with smaller and older ones.

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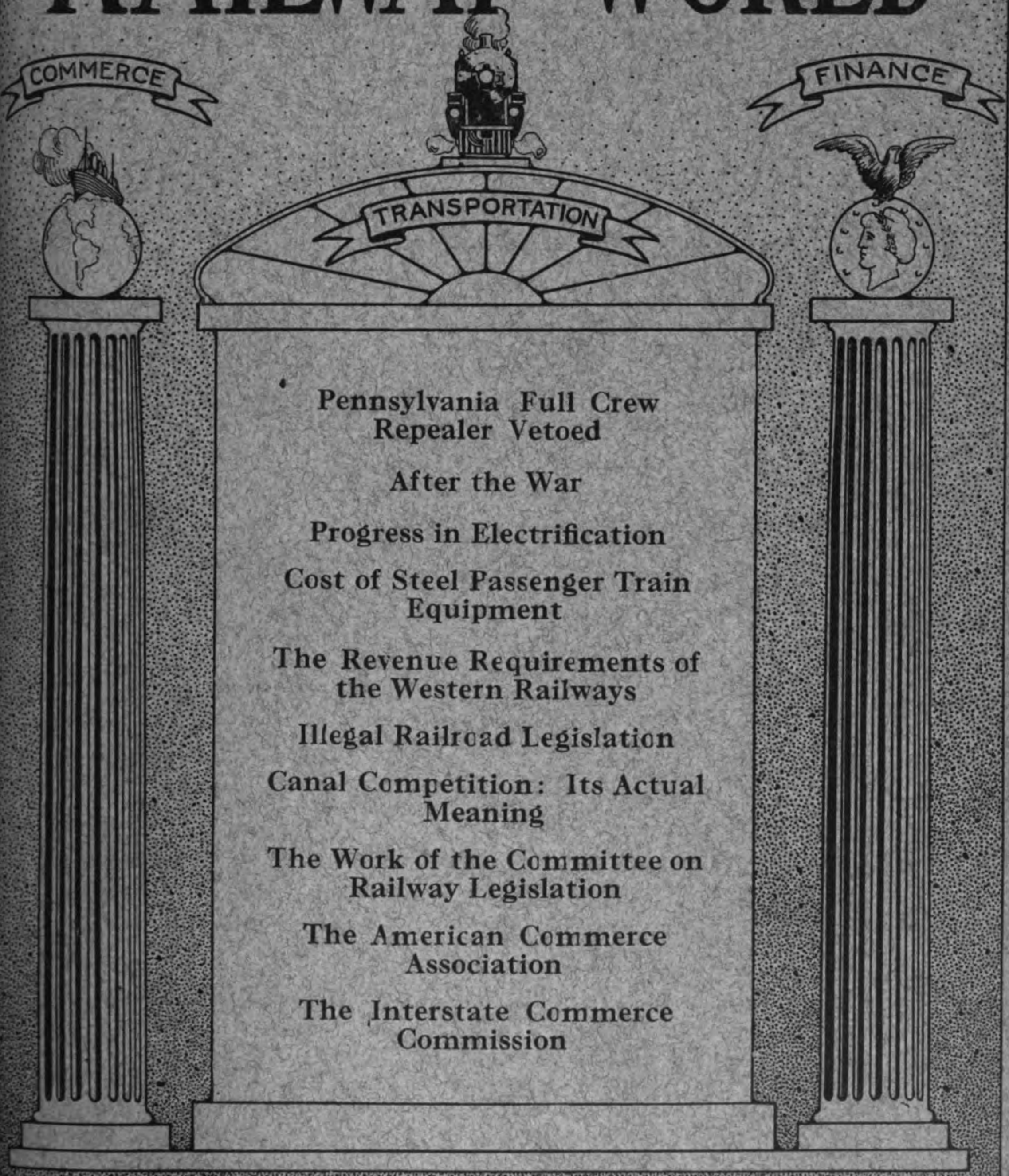

Pennsylvania Full Crew Repealer Vetoed

After the War

Progress in Electrification

Cost of Steel Passenger Train Equipment

The Revenue Requirements of the Western Railways

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The Work of the Committee on Railway Legislation

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JUNE, 1915

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(a) Those who actually operate the air brake to control moving trains. The operating crews including engineers, firemen, brakemen, conductors, etc., are numerically, the largest class primarily interested in, and responsible for, skillful brake manipulation and train handling.

(b) Those who maintain, repair and test the air brake. Air brake foremen, repairmen, test rack operators, inspectors, etc. This class is small compared with trainmen and is primarily interested in the structural features and detailed operation of the individual devices.

(c) Those who lay out and make the installation. Mechanical engineers, chief draftsmen, car designers, car and locomotive builders, railroad inspectors, etc. These men are concerned most with matters of braking power, leverage, distribution of apparatus on the car or locomotive in relation to other devices, and similar work.

(d) Those in authority who supervise and instruct. Supervisors of air brakes, air brake instructors, road foremen of engines, etc. These officials should have a comprehensive knowledge of both the practical manipulation and the mechanical operation of the air brake system, its individual parts, and the principles upon which this operation is based.

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Railway World

VOLUME LIX ESTABLISHED 1856 NUMBER 6

A MONTHLY JOURNAL (successor to Railway World, a weekly publication) designed to present an accurate and comprehensive review of current events pertaining to Transportation, Commerce and Finance and to afford a medium for the development of a clearer understanding of the mutuality of interest which exists between those who employ and those who operate the railways.

Publication Office: 612 Chestnut Street, Philadelphia, Pa.

Terms: $3.00 per Annum in Advance
Foreign Subscriptions: $3.50 per Annum in Advance
Single Copies: 25 Cents
Advertising Rates furnished upon application

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OFFICE OF THE UNITED GAS IMPROVEMENT CO.

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Philadelphia, June 9, 1915.

The Directors have this day declared a quarterly dividend of two per cent. ($1.00 per share), payable July 15, 1915, to stockholders of record at the close of business June 30, 1915. Checks will be mailed.

I. W. MORRIS, Treasurer.

AMERICAN CAR AND FOUNDRY COMPANY

New York, June 2, 1915.

PREFERRED CAPITAL STOCK

Dividend No. 65

A dividend of one and three-quarters percent (1¾%) on the Preferred Stock of this Company has this day been declared, payable Thursday, July 1, 1915, to stockholders of record at the close of business Friday, June 11, 1915.

Checks will be mailed by the Guaranty Trust Company of New York.

WM. M. HAGER, Secretary.
S. S. DELANO, Treasurer.

AMERICAN CAR AND FOUNDRY COMPANY

New York, June 2, 1915.

COMMON CAPITAL STOCK

Dividend No. 51

A dividend of one-half percent (½%) on the Common Stock of this Company has this day been declared, payable Thursday, July 1, 1915, to stockholders of record at the close of business Friday, June 11, 1915.

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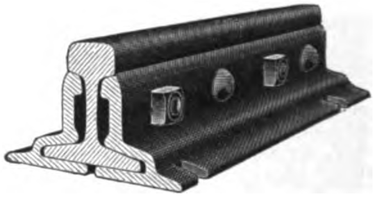

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Railway World

VOL. LIX. JUNE, 1915 No. 6

Important Developments in the Transportation Field

WHAT THE RAILROADS NEED

The present difficulties and outlook of American railroads, as some of their presidents see them, are discussed in the June issue of the *Nation's Business,* the official publication of the Chamber of Commerce of the United States. A. H. Smith, president of the New York Central, goes into the situation at length. From a purely railroad standpoint, Mr. Smith declares, the prospects will be determined largely by the attitude of the public toward railroads, with respect to the eliminating of legislation and regulations which are unremunerative to the stockholders and also eliminating regulations which are not beneficial to the public as a whole.

"The railroads need most, just now and for the future," Mr. Smith goes on, "to be correctly understood and appreciated by the people, as the most essential element in the present and future commercial prosperity of this country and they need to have accorded to them fair, just and reasonable treatment by the public, by legislatures, commissions, and other regulative bodies, in order that they may expand, develop into efficient methods and improve their service.

"It is believed that the need is appreciated by the great majority of the principal shippers and travelers, but there are many others—and probably a majority of people—whose daily affairs are so remote from the details of commerce that they often constitute, without knowing or appreciating that in the end they will be vitally injured."

James J. Hill, the veteran railroad president of the country, sums up what he has to say in a few words:

"In my opinion," the pioneer concludes, "there is nothing in sight going to show that general business in this country, outside of war material for export, has improved or is improving."

The railroads need more than anything else, increased traffic and less regulation, according to F. D. Underwood, president of the Erie.

"Until such traffic is forthcoming," Mr. Underwood says, "there will be, I fear, small improvement in existing conditions, although the harvesting of a good crop, such as now seems in prospect, will undoubtedly help much."

More business is the keynote also of what Daniel Willard, president of the Baltimore and Ohio has to say. Prospects as he sees them are hopeful. Increased larger gross revenue, in the opinion of Julius Kruttschnitt, chairman of the Executive Committee of the Southern Pacific, can be produced either by more traffic than at present rates, or by a much higher rate on existing traffic.

"The first solution is dependent upon the condition of general business," Mr. Kruttschnitt explains. "The latter is a function of governmental authority. The railroads need relief from further embarrassing legislation. Regarding the immediate prospects of railroads in the United States, I think in general the probability is increasing that railway needs will be promptly appreciated by the public. Public understanding of the railroad situation is becoming clearer and the public attitude more sympathetic."

Along this line Mr. Smith, of the New York Central, quoted in an earlier portion of this article, says unfortunately much legislation, although doubtless enacted in good faith, has been enacted without a detailed knowledge of the situation, or without accepting the advice or suggestions of experts, or even of the Government's own Commissions. He was of the opinion that such legislation has impaired the efficiency, demoralized discipline, and imposed unnecessary expenses both upon the public and upon the railroads without benefit to either. Mr. Smith said in spite of the foreign situation, which somewhat embarrasses our trade, our home business appears to be active with indications of constant growth.

PROGRESS IN WESTERN ADVANCE RATE CASE

There is not much likelihood of a decision in the Western rate advance case before fall. This case, which is of momentous importance to the carriers, begun last March and the taking of testimony and presentation of arguments, carried on in Chicago before Commissioner Daniels and Special Examiner Watkins, consumed practically three months. The railroads involved, sixty-four in number, have now filed their briefs, general arguments and abstract of the testimony presented at the hearing, with the Commission at Washington, and oral argument was made on June 22d. This closes the case, so far as the carriers are concerned, and the next step will be its consideration by the Commission, and the rendering of its decision.

The carriers' briefs, filed with the Commission, review the evidence presented, and suggest that the following findings are in accordance with the facts developed:

"That transportation costs are higher, while the net return to the railroads from transportation service has materially decreased since 1910.

"That the operating for the purpose of an increase in revenue is justified.

"That notwithstanding the investment of large amounts in additions and betterments of roadway and equipment for the purpose of greater efficiency, the carriers have not been able to overcome the steadily increasing cost of service, but are facing a constantly declining net rate of return from operating revenues.

"That the operating expenses, including taxes and hire of equipment, have increased more rapidly than the operating revenues and that said increase in operating expenses is due to causes beyond the control of carriers.

"That the question of the necessity for additional revenue and of general level of the rates should be determined by a composite showing of financial and operating conditions and the rate of return of all of the lines within the territory and not by individual or selected lines.

"That the revenues of the carriers principally involved in this proceeding are not sufficient to allow them to earn a fair return upon the value of their properties, and at the same time maintain the service rightfully demanded of them by the public."

It is generally conceded that the railroads have developed an unusually strong case and that the opposition, considering the importance of the issues involved, has been of an unexpectedly mild character. In fact, evidence has not been lacking that shippers are beginning to take a broader viewpoint regarding the carriers' problems, brought about by a better understanding of the fact that without a fair treatment of the transportation interests, all other industrial enterprises must correspondingly suffer. It is, of course, impossible even to attempt to predict what the Commission's decision may be, but, in view of the favorable ruling in the recent Eastern advance rate case, it would appear difficult to escape the conclusion that the Western roads are entitled to an upward readjustment of their rates.

The brief submitted by C. C. Wright, general solicitor of the Chicago and North Western Railway, and chairman of the attorneys' committee, is referred to at greater length in another section of this issue.

PENNSYLVANIA FULL CREW REPEALER VETOED

Announcement in the daily press of June 21st, that Governor Brumbaugh of Pennsylvania had vetoed the Full Crew Law repealer recently passed by both Houses of the Legislature of that State, caused a great disappointment, not only to railway officials, but to thousands of citizens who had become so deeply interested in the controversy, as to make a direct appeal to the legislators at Harrisburg, to have the Full Crew Law repealed.

The sentiment of the press and the people of the State was apparently largely in favor of the repeal, and the carriers' attitude was so eminently fair and the compromise offered so reasonable, that it would appear impossible to base the Governor's action upon any other influence but that of the labor element directly or indirectly involved.

The repealer, which the Governor saw fit to veto, gave specific power to the Public Service Commission to arbitrate disputes between the railroads and employes, when they disagreed as to the number of trainmen who should be hired, and thus placed in the hands of the regulative body, the power compelling trains to be properly manned. This is where the power should rest, and under such an arrangement, it would appear inexcusable to permit a law to remain on the statute books, which arbitrarily forces upon the railways a useless expense simply for the purpose of providing compensation for a large number of men for whom there is no real employment.

Governor Brumbaugh's veto utterly disregarded the fact that the repealer placed the authority for manning the trains squarely where it belonged, that is, in the hands of the State Commission, and his remarks upon the campaign conducted by the railroads to repeal an absurd and unfair law, which was costing them several million dollars every year, will hardly meet the sympathy of the public. The railroads' campaign was conducted in the open and in a perfectly frank and honest manner, and its strength lay entirely in the justice of the position taken. To cast aspersions upon the railroads on account of a public effort to protect themselves against what they considered a useless expense, is hardly in conformity with American principles. If there was any influence of an insidious character employed during the controversy, it came not from the railway managers, but from those who were making an effort to keep an utterly defenseless law upon the statute books. It is astonishing that Governor Brumbaugh could have been induced to veto the repealer, not only because it was supported by most fair minded people, but because it represented a compromise so fair as to in no wise jeopardize the rights of railway labor. The vetoing of the bill will impose an unwarranted burden upon the railroads for the next two years, and, viewed from any angle, constitutes a gross injustice to the carriers of the State. President Samuel Rea, of the Pennsylvania Railroad, gave out the following statement concerning the action taken by the Governor:

> Speaking for the Pennsylvania Railroad Company, the most important transportation agency of our State, and with 32,000 of its 92,500 stockholders living within the State, I can only say that we are surprised and disappointed at the Governor's action in vetoing the bill for the repeal of the so-called full crew law, which was passed by the Legislature to correct a gross injustice to the railroads of the State and relieve them and the public of the onerous and wasteful expenditure which the full crew law imposes on them.
>
> The people of the State have shown in no uncertain way their desire to have the railroads relieved of this burden, and the Legislature, after full consideration and careful hearing, passed by large majorities this measure, which vested specifically in the Public Service Commission the power to fully safeguard the interests of the public.
>
> There is no well-founded reason or fact given in the veto to justify it, and while I am entirely satisfied that the public should form its own judgment, it seems proper that particular attention should be directed to the fact that the very purpose of the bill, namely, "to empower the Public Service Commission of the State to require railroad corporations to employ an adequate number of men upon their trains," is singularly ignored in the veto, notwithstanding that it practically meets every objection advanced by the Governor.
>
> The financial condition of the railroads throughout the country to-day is already well known, and on economic grounds alone there never has been any valid reason why they should be bound by statute to employ a stipulated number of men on passenger and freight trains, irrespective of necessities or conditions. The Legislature has adjourned and therefore the action of the Governor in the exercise of his power has reimposed this injustice on the public and the railroad companies for at least another two years, and places upon them an unwarrantable burden during that time of $2,700,000.

In a letter to the Philadelphia *Public Ledger*, L. F. Loree, president of the Delaware and Hudson Railroad Compay, stated that it was distressing in these times, when the necessity of economy in every direction is so pressing, that Governor Brumbaugh should have made himself personally responsible for waste in the enormous amounts involved in this legislation. Mr. Loree called attention to the fact that a dollar wasted in this way destroys the ability to expend twenty dollars raised through credit.

AFTER THE WAR

Foreign orders, particularly from the war zone, have recently proved an important factor in the stimulation of general business. These orders have not only applied to munitions of war, but have ramified into practically every branch of trade, with the result that business men are beginning to predict an era of real prosperity. The demand for food products has become enormous and prostrate Europe, unable to supply even a small part of the requirements of her civilization, is looking more and more to the United States for the actual necessities of life.

Our trade balance is swelling to enormous proportions, and there is every indication that an abnormal foreign demand for our products has only begun. Our grain crop for the current year bids fair to be the largest in the history of the Nation, while the growing demand for our mineral products is likely before the end of the year to eclipse all former records.

In view of these recent developments, captains of industry have been freely predicting a period of general prosperity and the only fly in the ointment appears in the prevalent belief that when the war ends, this abnormal demand will suddenly cease, throw our industrial machinery out of gear, and cause a widespread depression.

Such deductions, however, are not likely to be substantiated by facts. Europe at the close of the war, will be, for some time to come, as much in need of our products as she was before the termination of the conflict. While the demand for actual munitions of war will largely cease, such demands will be supplanted by an increase in those of a more peaceful and domestic character, for it will undoubtedly be many years before Europe again finds herself in a position to supply the wants of her citizens to the same extent as she did before the war.

This is rather strikingly illustrated, through a letter recently received by the RAILWAY WORLD from Willy Lamot, Antwerp, Belgium, but whose temporary address is Shardhighs, Halstead (Essex), England. Mr. Lamot writes as follows:

> TO THE EDITOR, RAILWAY WORLD,
> Philadelphia.
>
> DEAR SIR:
>
> I should be very glad if you would inform your readers that several Belgian competent business men have created an organization having a double object:
>
> 1. To introduce in Belgium, as soon as the war is over, all American products and manufactures, etc.
>
> 2. To employ as agents, representatives, etc., a large number of Belgian manufacturers and business men, who have been partly ruined, but still possess enough capital and can give the necessary guarantees as agents, dealers, etc.
>
> Being convinced that this organization will have the approbation of American manufacturers and business men, those interested are asked to address their inquiries to Mr. Willy Lamot, Shardhighs, Halstead (Essex), England, who will give them full details.
>
> Owing to the risk of traveling, may I suggest copy of letter be forwarded after a week or so, in case one is lost.
>
> Thanking you for the space afforded me, I am,
> Yours faithfully,
> (Signed) WILLY LAMOT.

This letter, while representing only one of the smaller nations engaged in the conflict, is singularly significant of the opportunities which are likely to present themselves to the enterprising exporter at the end of the war.

VALUING PERSONAL BAGGAGE

The railroads in order to carry out the provision of the Cummins amendment to the interstate commerce act, were compelled on and after June first, to require all persons checking baggage for interstate transportation, to sign a declaration of its value. In order to relieve, so far as possible, the very great inconvenience to which this regulation has placed passengers, many important systems are requiring the signing of the declaration, only where specifically demanded by the law, that is, on baggage checked for interstate transportation.

Heretofore the railroads have generally limited their liability for a piece of baggage to $100. Under the Cummins act, however, the carriers cannot limit the liability for damage or loss to baggage unless they obtain from each person checking baggage, a declaration of its value. This value then constitutes the maximum amount recoverable from the company. Up to a value of $100 there will be no insurance charge to the owner of the baggage, but if the value of a piece of baggage is declared to be in excess of $100, a charge of 10 cents for each $100 or fraction thereof, over this amount, will be levied in consideration of the extra liability assumed. The act makes it a misdemeanor for passengers to misrepresent the value of baggage.

It is interesting to note the effect of this law in its application to one of the great systems of the country. A record kept by the Pennsylvania Railroad of the baggage checked during the first week in June, on which values were declared, at Broad Street Station, Philadelphia, and at Pennsylvania Station, New York City, shows that there were 15,232 pieces so checked during this period. During the first few days, there was some general complaint, but these largely ceased as it became known that the railroad was not responsible for the new regulation. Already, it is reported the declarations of the value of baggage are being signed without comment.

The Pennsylvania Railroad is doing everything it can to facilitate the declaration of the value of baggage so as to eliminate as much as possible any inconvenience to patrons. To this end, blank forms for the declarations are being supplied to hotels, merchants, and others so that they can be signed and sent with the baggage to be checked. This eliminates the signing of the declaration blank at the stations.

The Pennsylvania Railroad has printed small slips explaining the new baggage regulations, and copies of these are being given to purchasers of tickets for interstate transportation as well as to passengers who present baggage for checking and who are unfamiliar with the requirements of the Cummins act.

The following paragraphs are taken from a notice which has been issued to the baggage agents and baggage masters of the Pennsylvania Railroad System regarding the application of the new law:

Supplement No. 11 to baggage tariff I. C. C. 4508, has therefore been issued covering necessary instructions in this regard. In order to facilitate the purpose referred to, you will be furnished with blanks form P. D. 1053 prepared in tablet form, entitled "Declaration of Value." The value of the baggage or property checked must be stated thereon and signed by shipper. If certified value does not exceed $100 for baggage belonging to each adult owner, and $50 for baggage belonging to a child, or $25 in the case of certain articles specified in tariff, and not classified as baggage, no charge will be made for insurance. Values in excess of $100, $50 and $25, as specified in the above classification, will be subject to a charge for excess values at rates prescribed in tariff.

Baggage masters must not check baggage to interstate points unless they are able to secure a declaration of value, and must not check baggage of excess value beyond the end of their runs, nor to points where there are no agents. All declarations of value will be delivered with baggage to agent at destination, with instructions to collect proper charges for excess value, if any.

Each declaration of value must be dated by office stamp or in writing, and the same be carefully preserved at the station for ready reference for a period of six years.

In the many cases of baggage left behind by passengers, any agent asking that same be forwarded must state in his letter or telegram that he has obtained certification of value, and name the amount. Baggage will then be forwarded under C. O. D. charges for excess value, if any. It must be borne in mind that to obtain certification of value of baggage, and issue checks therefor in some cases and not in others, would be unlawful, and that if for any reason this certification cannot be obtained covering any piece of baggage, then in such cases it must not be checked.

Transfer companies checking baggage will be instructed that they must obtain a declaration of value and attach "stop check" to baggage check showing such value, for the information of the station agent, who will then compute charges for excess value, if any, and forward C. O. D. the same as in the case of excess weight of baggage.

The above applies to baggage checked between interstate points only. In the case of baggage checked between interstate points no declaration of value will be required.

MODERN COMPETITION

As heretofore pointed out in these columns, railway competition, based solely upon freight rates, is becoming largely a practice of the past, and the up-to-date road of to-day depends more upon its equipment and ability to please its customers, than upon any other device to hold and maintain its traffic.

It has been reported that a party of Lehigh Valley Railroad officials, including both operating and traffic men, have recently returned from an unique business trip. Seeking to learn at first hand what their patrons in the Middle West had to suggest for the betterment of the line's service, the party visited all of the larger cities in this territory. Ideas of all kinds affecting the dispatch of business, whether they were already in vogue on other lines or represented the ideas of shippers as to how their freight should be handled, were carefully noted and where practical, will be adopted by the Lehigh Valley. The trip lasted four weeks, and the party interviewed prominent Western railroad men as well as shippers, in their search for new ideas.

This constitutes a very good illustration of modern competition, which stands for efficiency and co-operation and goes a long way, not only to increase the individual road's traffic but also to develop a greater bond of sympathy between the carriers and those who employ their facilities.

PERSONAL CHARACTER AND THE SAFETY FIRST MOVEMENT

The safety first movement not only stands for the conservation of human life and greater efficiency in operation, but, if followed conscientiously, has a decidedly redemptive effect upon human character.

Safety first, as now practiced in industrial and railway work, not only means a greater effort for individual safety, but also demands a larger consideration for the other fellow's welfare. The safety first movement, if only applied by the individual to his personal wants, would fall far short of accomplishing results, but it is the co-operative effort and the willingness to think and act as much for the safety of your coworkers as for your own protection, that makes the movement produce results.

This influence is brought out in a brief article by L. R. Christopher, member of the Chicago Freight Terminal Safety Committee, recently published in the monthly bulletin of the passenger department of the Chicago and North Western lines. Speaking of what the safety movement has done for him, Mr. Christopher says:

> I shall try to explain the effect the following up of this great idea has had upon my own personal character,—it has steadied me—it has brought me to a keener realization of what it means to be a man upon whom the lives of other men may depend.
>
> This unobtrusive little green and red button on my coat warns me always. Go carefully—take no chances—for it is not your life alone, but the lives of your fellow workers who may depend upon your care and discretion at this moment.
>
> I am convinced that what it has done for me it has done as well for the majority of the men with whom I work—laid a steadying, saving hand upon them, warning them to keep heads clear, hands steady and firm—to meet the emergency which may arise at any moment.
>
> It waves its little red lantern before our eyes when we are tempted to take a chance. That one little chance which is taken may mean disaster and death. In short it has awakened in us a desire to be safe men upon whom the company and its patrons may depend at all times and be justified in so doing. More than this even, it calls upon us to keep our hearts staunch and brave so that if the hour should come when to save the many or even just one we are called upon to lay down our lives, we will not falter, for while the slogan of the great movement is Safety First, to the true railroad man it must always read—"The Other Fellows' Safety First."

PROGRESS IN ELECTRIFICATION

The Railway World has contained a number of articles recently with regard to progress being made in electrifying steam roads. Particular attention was paid in last month's issue to the electrification of the suburban service of the Pennsylvania Railroad, on its main line between Philadelphia and Paoli, Pa. This service, which is to be placed in operation on or about July first, was accomplished at a cost of $4,000,000, and will give the company the most modern and efficient twenty miles of electrified railroad in the world.

Almost the heaviest traffic carried by any stretch of railroad in America thunders over the four main tracks of the Pennsylvania between the West Philadelphia Yards and Paoli. The proudest of the limited trains that link the East with the West, the heaviest of slow-moving freights and scores of locals take the same route. To equip this important line with electric motive power meant the overcoming of many difficulties and the solving of wholly new problems in the science of transportation.

Between West Philadelphia and Broad Street Station the concentration of traffic made the work of construction a task of almost unprecedented difficulty. Through the "throat" of six tracks at the first interlocking tower west of Broad Street Station, where 55 switches and 52 signals are located, no less than 2,295 separate movements of trains and engines occur daily. It was necessary to devise means by which the construction gangs could work without interruption to this immense traffic.

It is a most noteworthy fact that the entire work of electrification from Broad Street Station to Paoli, which involved the stringing and restringing of 660 miles of electric wires, the erection of 760 poles, 36 signal bridges and four power stations, was accomplished without the loss of a single life, or the occurrence of any serious accident, from electric shock. This is a record which, it is believed, was never before equaled in any undertaking of similar character and magnitude.

In order to have a thoroughly drilled force ready to handle the electric trains, as well as to create a reserve of trained employes which can be drawn upon at any time, upward of 600 men are now undergoing careful instruction. In addition to the instruction required by the company, some 300 employes have voluntarily enrolled in a Practical Railway Electric Class. Included among the students are 80 enginemen and 28 firemen.

For the guidance and instruction of employes, a set of safety rules has been prepared and a printed copy will be placed in the hands of every man whose duties require him, at any time, to work within the electrified territory. As a further precaution, a large number of employes are receiving instruction in resuscitation from shock.

Every effort will be made to prevent trespassing on the electrified tracks. Risk from grade crossings has been completely eliminated, as there is not a single grade crossing on the Pennsylvania Railroad between Broad Street Station and Paoli. The establishment of this new electric train service will mark the completion of another important step ahead in the art of safe and efficient railroading.

COST OF STEEL PASSENGER TRAIN EQUIPMENT

The special committee on Relations of Railway operation to Legislation, has recently issued a bulletin which contains the result of their investigation, covering the progress being made in the construction and employment of steel and steel underframe passenger equipment, and to determine the probable cost which would be entailed in the reconstruction of the present wooden passenger equipment of the country into steel equipment.

This committee, in order to procure data on which to base its report, sent a special circular to all railways of the country and received replies from 284 companies operating 245,721 miles of road. These roads, according to their statements, were operating 62,112 passenger equipment vehicles and had under construction on January 1, 1915, 956 additional. Replies were also received from ten companies operating 27,628 miles in Canada, and owning 5,366 passenger equipment vehicles with 57 under construction. The following table prepared from the statements received, but exclusive of those submitted by the Canadian roads, shows the great change in construction since 1909. In that year over 50 per cent of the entire passenger equipment built was of wooden construction, while on January 1, 1915, the cars under construction were divided into 75.8 per cent of steel, 23.9 per cent steel underframe, and but 3 per cent of wood.

Acquired in	Total Number	Steel	Steel Underframe	Wood
1909	1,880	26.0%	22.6%	51.4%
1910	3,638	55.4	14.8	29.8
1911	3,756	59.0	20.3	20.7
1912	2,660	68.7	20.9	10.4
1913	3,350	63.0	30.4*	6.6
1914	4,495	74.6	20.9*	4.5
January 1, 1915, (Under construction) .	956	75.8	23.9	0.3

* This figure includes wooden cars reconstructed with steel underframe.

The rapid increase in steel and steel underframe cars is further shown in the following tabulation:

Approximately in Service	Steel	Steel Underframe
January 1, 1909	629	673
January 1, 1910	1,117	1,098
January 1, 1911	3,133	1,636
January 1, 1912	5,347	2,399
January 1, 1913, ...	7,271	3,290
January 1, 1914	9,492	4,608
January 1, 1915	12,900	5,700
Increase 1915 over 1909 ...	12,271	5,027
Increase 1915 over 1909 ...	1,951%	747%

The number of wooden cars in service January 1, 1912, was 48,126. There are now in service approximately 43,512, indicating the retirement from service of 4,614 wooden cars in three years. Of this number, 1,048 were retired during the calendar year 1914.

It may be readily appreciated that this radical change in service could not have been accomplished without a large expenditure on the part of the carriers. The following table, also prepared by this committee, is particularly illuminating in this respect, showing as it does the approximate cost of replacement of the wooden cars now in service:

APPROXIMATE COST OF REPLACEMENT OF WOODEN CARS.

	No.	Average cost	Amount
Postal	461	$11,000	$5,071,000
Mail and Baggage	2,562	10,000	25,620,000
Mail, Baggage and Passenger	579	10,000	5,790,000
Baggage and Passenger	3,519	10,000	35,190,000
Baggage or Express ..	7,507	8,500	63,809,500
Passenger	22,266	12,800	285,004,800
Parlor, Sleeping, Dining	5,353	22,000	117,766,000
Business	730	15,000	10,950,000
Motor	535	20,000	10,700,000
Total	43,512		$559,901,900
Annual interest charge at 5%			$ 27,995,095

The charge to operating expenses under the classification accounts of the Interstate Commerce Commission, assuming a value of $4,000 per vehicle replaced, will be $174,048,000.

In view of these figures, it is little to be wondered at that the carriers are making strenuous efforts to increase their income, through permission from the regulative authorities to advance certain of their rates. The change from wood to steel equipment in the passenger service, is only one of the many items of extraordinary expense which the railways have encountered within recent years, in their efforts to maintain and develop an efficient transportation plant.

The installation of improved signaling systems, the elevation of grades, the construction of the more costly terminals demanded by the public, the expensive demands of regulative authorities, the general increase in the cost of railway supplies, the higher wages and the increased taxes, have all placed a burden upon the railways, which is becoming increasingly difficult to satisfactorily carry. However, the Interstate Commerce Commission, and a number of State railway commissions, have manifested an increased desire recently to give the railways a better opportunity to meet their obligations, and with more satisfactory general traffic conditions, railway prosperity, perhaps to an extent never before experienced, is at least a possibility of the future.

SLACKENING OF RAILWAY CONSTRUCTION IN 1913

A world-wide slackening in railway construction was experienced during 1913. The earth's total of rail mileage gained less in that year than in either of the two preceding, and fell also below the growth of 1908. For the entire world there was a mileage of 684,614 miles, a gain of 15,009 miles in the year, compared with 16,717 miles in 1912; 15,078 in 1911; 14,387 in 1910; 14,139 in 1909, and 16,672 in 1908. The figures are from the annual compilation of the Royal Prussian Department of Public Works, which have just been received in Chicago and translated into English units by the Bureau of Rail-Railway News and Statistics.

How pre-eminently the United States is the railway nation of the world, is shown by the fact that over 37 per cent of the entire mileage falls within its borders. With a gain of 4,979 miles, (which is probably slightly too high) almost one third of the entire growth is ascribed to this nation, while out of the entire 15,009 mile growth, 9,910 miles were contributed by the two Americas. The gain in the United States alone is more than double that of all Europe and is larger than that of the entire world outside the Americas.

Railway systems of the five great geographical divisions of the earth compare in miles of operated line, as follows:

	1913	Gain	Gain 1912
Europe	214,665	2,238	2,296
N. and S. America	353,467	9,910	10,181
Asia	67,051	1,486	1,376
Africa	27,472	994	1,375
Australia	21,959	381	1,489
Total	684,614	15,009	16,717

Asia, it will be noted, was the only continent to show improved railway expansion.

The overwhelming leadership of the United States as a railway nation is shown more clearly in a comparison of individual countries, for after its 254,769 miles (including 653 for Alaska), Germany is second with only 39,513 miles, while European Russia is third with 38,563. Then follow in order, British East India, 34,572; France, 31,737; Canada, 29,233; Austria-Hungary, 28,641; Great Britain, 23,385; Argentina, 20,593; Mexico, 15,805; Brazil, 15,491; Italy, 10,933; Spain, 9,517; Sweden, 8,984, and Japan, 6, 811.

In relative growth, however, the United States has not held its own, for while the world mileage in five years expanded 9.6 per cent, our railways grew 7.7 per cent. This, however, exceeds Europe's growth of only 4.9 per cent. The Americas, as a whole, grew 10.9 per cent in five years, while Asia grew only 8.8 per cent. Africa takes the leadership here with a growth of 32.3 per cent, the high spot being German East Africa, with 209.3 per cent. Australia grew 16.8 per cent.

Belgium remains at the head in proportion of railway mileage to area, having 48.1 miles per 100 square miles. Next are Saxony with 34.1; Luxemburg, 32.5; Baden, 25.6; Alsace-Lorraine, 23.3; Great Britain, 19.3; all Germany, 19.0; Switzerland, 18.8; Bavaria, 18.2; Wurttemberg, 18.0, and Prussia, 17.5.

Though in this comparison the United States has only 7.1 miles per 100 square miles (including Alaska), many of its States are better provided than European countries, New Jersey having 30.7 miles; Massachusetts, 26.2; Pennsylvania, 25.7; Ohio, 22.4; Illinois, 21.4, etc.

Persia still is poorest with less than 1-200th mile per 100 square miles.

In relation to population, Western Australia leads the world with 72.5 miles per 10,000 inhabitants. Europe has only 4.0 miles, its best single record being Sweden with 16.4 miles. The United States, in contrast, has 26.2 miles per 10,000 inhabitants. China is poorest with less than 1-5 mile per 10,000 population.

GOOD ROADS MOVEMENT IN SOUTH

Railroads of the South have co-operated in splendid fashion with the Chattanooga Automobile Club and other interests back of the Dixie Highway. The two most important meetings in behalf of the Chicago-Miami highway were held in Chattanooga, the first on April 3, the last on May 20-22. For both occasions the Southeastern Passenger Association granted a special rate which was just about half regular fare. All lines entering Chattanooga joined in the request for this special rate, with little urging the first time and none the second time. A large share of the credit, therefore, for the large crowds which went to Chattanooga in behalf of various communities and groups of communities, to seek official designation as parts of the Dixie Highway, is cheerfully accorded to the railroads. If there were any doubting Thomases on the proposition that railroads favor better highways, they have been converted. In a very tangible, practical way it has been demonstrated in the South that the railroads are for better transportation and communication other than by steel rails. Railroad officials point out that the railroads are just as anxious for better highways as anybody else, realizing that better roads will help develop the country and make increased business for the carriers. As never before, perhaps, the significance of Fairfax Harrison, president of the Southern Railway, being also head of the American Highway Association, has been impressed on the people of the South.

After the meetings referred to, formal announcement of the Commission's conclusion regarding destination of the Dixie Highway system was made public in a statement by Chairman Clark Howell and endorsed by his colleagues, text of which is herewith reproduced:

> The Commission adopted the circle arrangement largely upon the suggestion of Carl Fisher, of Indianapolis, who originally suggested the Dixie Highway movement, and who was a prime mover in the Lincoln Highway. It was done largely to meet the condition created in the applications of Louisville and Nashville on the one side and Cincinnati and Knoxville on the other. Both were full of enthusiasm, and as their interests in nowise conflicted, as they were in entirely different sections, it was the unanimous judgment of the Commission that it was best to take advantage of this opportunity to get two great routes centering at Chattanooga. The one via Knoxville and Cincinnati, would traverse the State of Ohio and connect with western New York and western Pennsylvania. The other, via Nashville and Louisville, would reach direct to Chicago and appeal to the demand for connection from Indiana, Michigan, Illinois and the Middle West.
>
> This circle will, in due time, take in the Florida peninsula (just as has been provided for in the Michigan peninsula) making a grand loop around the Michigan lakes just as it will between the Atlantic and the Gulf of Florida.
>
> The route, as selected, follows:
>
> West Route—Chicago, Momence, Watseka, Hopestown, Danville, Ill.; Covington, Crawfordsville, Indianapolis, Martinsville, Bloomington, Bedford, Paoli, Ind.; Louisville, West Point, Elizabethtown, Cave City, Bowling Green, Russellville, Ky.; Springfield, Nashville, Murfreesboro, Shelbyville, Sewanee, Mont Eagle, Chattanooga, Tenn.; LaFayette, Summerville, Rome, Cartersville, Atlanta, Jonesboro, Griffin, Barnesville, Macon, Americus, Albany, Thomasville, Ga.; Tallahassee, Live Oak, Lake City, Jacksonville, St. Augustine, Palm Beach, Miami, Fla.
>
> East Route—(Joining West Route at Indianapolis)—Richmond, Ind.; Dayton, Cincinnati, Ohio; Covington, Williamstown, Georgetown, Lexington, Richmond, Cumberland Gap, Ky.; Knoxville, Rockwood, Dayton, Chattanooga, Tenn.; Dalton, Calhoun, Atlanta, McDonough, Jackson, Macon, Ga.; (East route from Macon to Jacksonville to be selected later).

Adjournment of the Commission's three days' session was immediately followed by a meeting of the incorporators, at which the following resolutions, providing that the various lines of the Dixie Highway system must be completed within a year, were adopted:

> Whereas, The Dixie Highway has been this day located by the commissioners appointed for that purpose, said commissioners in so locating said highway having relied upon the statements, promises and guarantees of the various localities through which it runs in regard to constructing and maintaining said highway, be it
>
> Resolved, That notice be and is hereby given to each county and municipality through which said highway has been designated that said highway must be completely constructed to the satisfaction of the commissioners and in accordance with the specifications to be hereafter adopted within twelve months from this date, and be it further
>
> Resolved, That the said commissioners reserve the right to change the location of said highway or any part thereof should the same not be completed at the time and in the manner herein before provided, hereby calling attention to the fact that the failure of any county or municipality to so construct, complete and maintain said highway will be sufficient cause to authorize said commissioners to change the location of said highway, and be it further
>
> Resolved, That a copy of this resolution be furnished each county and municipality for their information and guidance.

The State of Michigan was admitted to the Dixie Highway movement and a loop road was designated along Lake Huron and Lake Michigan, beginning on the eastern line at Toledo, thence to Detroit, Saginaw, Bay City, Straights of Mackinac (the farthest point north) and down to South Bend over the already completed West Michigan Pike.

Carl G. Fisher, one of the Indiana route commissioners, and William W. Marr, secretary of the Commission, were appointed as a committee to draft specifications for the construction and classification of the various lines in the designated system. The committee was instructed to report to the executive committee, which will approve the specifications and forward them to the counties traversed by all the lines.

A resolution introduced by Commissioner Harris, of Cincinnati, recommended to the directors that construction of branch roads connecting with the main highway be encouraged. It was also recommended that each State not now represented, but which builds acceptable lateral roads, be permitted to name two directors in the Association. These recommendations were adopted.

PUBLICATION OF BALTIMORE AND OHIO EMPLOYES' MAGAZINE RESUMED

It is noted with pleasure, that with the July issue, publication of the Baltimore and Ohio Employes Magazine will be resumed. It is reported that great stress will be laid on the educational and welfare work of the company's employes and, much space will be devoted to articles of historical character concerning the railroad, technical phases of its operation, safety and sanitation, traffic solicitation and railroad accountancy.

The magazine, which is distributed free to all employes who speak and read the American language, will make a special feature of a personal claim and honor roll, and will place particular emphasis upon matters of home interest, by an enlargement of the departments devoted to the women members of the railroad families.

The Baltimore and Ohio will make no mistake in again extending to its employes the privilege of receiving copies of this official magazine each month. Such an effort, not only tends to develop a greater feeling of loyalty, but the discussion of various matters relating to operation and mechanics, often bring about improvements in the service, which even in direct financial results, far outweigh any expenditure incurred in publishing the magazine.

A number of our most prominent systems have, for a number of years, been engaged in similar experiments, with the most gratifying results, and, judging from the character of some of the magazines published, there is scarcely an issue which does not contain a large amount of material of direct value to the service. The possibilities of serving employes through a medium of this character are almost unlimited, while the men are encouraged thereby to present their ideas to the management, all of which stands for a closer co-operation, and a more harmonious operation of the plant.

Contemporary Opinion

A Human Problem.

(From Financial America.)

"AMERICAN railroads are without a rudder. They know not whither they are going, and they are unable to determine their course. They only know they are in a storm and that their bearings are lost."

The above is the first paragraph of the introduction to Mr. Ivy L. Lee's interesting and informative book on "Human Nature and Railroads." We quote it, not to emphasize a depressing note, but to accentuate the thoroughly logical though necessarily general suggestion which Mr. Lee offers as a means of remedy.

The great problem is to establish the point of contact, to make the railroad manager, the employe, and the public in their mutual relations understand one another's point of view.

Is it not possible that a better recognition by all sides of the human aspects of the situation might remove many of the doubts and fears which beset railroad pilots, as well as quell something of the storm which rages about their heads?

The railroad problem, Mr. Lee points out, is a very human problem; it is a problem that concerns us above all else as human beings. It is clear, indeed, that the human aspects of railroads have been forgotten—forgotten, generally speaking, by both railroads and public. The personal element in the situation has been lost sight of. The fault cannot all be laid at the door of one side or the other; both sides are blameable.

The responsibility for establishing the railroads on a sound and profitable basis, therefore, is one shared by the country at large. We believe, however, that this rehabilitation is definitely under way, and we have no sympathy with any who persist in shouting "wolf" when all the signs of the times are that the railroads are now establishing methods of economy which should have been in general practice years ago. However, it is clearly the part of the public to see to it that the railroads have equal opportunities with other enterprises to conduct their business at a reasonable profit. We believe the public will be found standing by the roads with a hearty co-operation if the roads continue to show a sincere effort to conduct their operations economically.

Besides showing a disposition to further reduce unnecessary expenses, some of the railroads are making an effort to meet their critics with educational advertising.

In the case of the "Extra Crew Law" this change of attitude bore particularly good results. The labeling of the measure as a "Full Crew Law" conveyed to the public the idea of inadequate protection. Had this notion been eradicated from the public mind at its inception then the law would never have been passed. However, the belated campaign that the railroads made has taught them to study psychological effects that they before neglected. This will bring them closer to the consumer of their service and if pursued industriously will lead to the formation of a community of interest that will plainly mark their course and give them a permanent rudder.

Governor Upholds a Vicious Law.

(From the Philadelphia Public Ledger.)

GOVERNOR BRUMBAUGH'S veto of the full crew repealer will carry to all parts of Pennsylvania a distinct disappointment. It will do much more than that and spread chagrin all over the United States, since this is a particuar local law that has a national bearing. This full crew, or what might more properly be designated extra-crew, law affects directly a very small portion of railroad employes. It singles out one branch of service among a thousand and regulates by statute the number of men who shall be employed to do a certain task. It does not say how many engineers, or firemen, or switchmen, or flagmen, or track walkers, or telegraphers, or clerks shall be hired to do a given work. The extra crew law selects only trainmen and exalts them into the realm of especial favoritism.

The extra crew law was put upon the statute books in violation of every theory of sound economics. Other States have realized that fact and have repealed their foolish extra crew laws. In Missouri it was done by popular vote, where other workmen decided that a railroad manager rather than a politically constituted State Legislature was the proper judge of the number of men a railroad should employ to do a given work. The last but one Pennsylvania Legislature presumed that it knew better than the railroad managers just how many trainmen there should be on every train. It did not presume to fix the number of any other of the scores of classes of railroad workmen nor of the hundreds of other classes of other labor throughout the State, but stopped with the trainmen.

When the Legislature which recently adjourned repealed that vicious piece of un-American meddling it did a fine day's work. The repealer law gave power to the Public Service Commission to arbitrate disputes between railroads and employes when they disagreed as to the number of trainmen who should be hired. There the matter should properly rest. Beyond all question, the railroad should have the right accorded to every other industry and every other employer, to say in the first instance how many men are needed on board its trains. If there is then a dispute, the Public Service Commission should have the authority to settle it and designate how many trainmen should be used.

The public will not agree with the Governor in his remarks upon the campaign conducted by the railroads to repeal an absurd law that costs them several million dollars every year. Like their fight for higher freight rates, it was peculiarly a campaign of education and publicity. To deny any man or any industry the right to defend himself or its own interests openly and squarely is surely strange doctrine in the twentieth century and in the United States. Such an open campaign of education and publicity is the very thing which the enlightened public has long demanded.

But the most vital thing about this extra crew law is that it fastens upon the State the evil principle that two men shall be hired to do one man's work and that it levies upon the people of our Commonwealth, who must pay for all the money all the railroads spend, a useless tax of several millions.

Railroad Receiverships.

(From New York Commercial.)

RAILROADS now in the hands of Federal courts and operated by receivers have a total of 30,500 miles of line—about the same as prevailed on June 30, 1896, which was the highest ever recorded in the history of the country. The present situation is not altogether due to the results attending excessive regulation or caused by business depression. The misfortunes of some of these roads are due to the inevitable outcome of improper manipulation.

The proportion of mileage in receivers' hands to total mileage operated is much less than it was in 1906, because there has since been a large increase in railroad mileage under operation. The total par value of securities outstanding of roads operated nineteen years ago by receivers was $1,795,900,000 and this is comparable with approximately $1,815,900,000 of the roads now insolvent. With the exception of 1908 in which year the Seaboard Air Line and the International and Great Northern were in the hands of receivers, there has been no year since 1896 in which as much as 4,000 miles of road became insolvent. The total mileage of railroads operated by receivers in 1914 was 4,222 as against 9,020 in the preceding year.

Every once in a while we have to clean house and a lot of housecleaning is in progress in railroad circles at an inauspicious time, but it is a great mistake to measure the condition of the country and of the railroads themselves by the mileage in the hands of receivers. The Rock Island system is the greatest that has ever been declared bankrupt and its troubles are due solely to the "kite flying" of those who secured control of it fourteen years ago.

Changes in the laws, new rules of the Interstate

Commerce Commission and better feeling on the part of the public, are contributing to restore confidence in railroad securities. Freight and passenger rates have been readjusted to increase revenues and well managed railroads have a bright future before them in spite of the war.

Individual Responsibility.

THE following is an extract from the book of operating rules of the Buffalo, Rochester and Pittsburgh Railway Company:

"The nature of the transportation business and its relation to the state and the community require the services of men of active minds, good character and general ability. The employes of a railroad are at all times, both in the discharge of their duties as employes and as citizens, under the constant view of the public. Failure to be efficient parts of the transportation system, or valuable citizens in whatever place they are domiciled, brings reproach upon them and on the corporation with which they are connected.

"There are corporate and private duties devolving upon each officer and employe that are not, nor can they be, expressed by fixed instructions or rules. A failure on the part of anyone to perform such duties makes it the duty of the proper officer of the Company to indicate to the person privately, in a proper way and place, his shortcomings. Subsequent failure to profit by the warning must sever the relations existing as employer and employe, notwithstanding the fact that there has been no literal violation of the printed rules.

"To enter or remain in the service is an assurance of willingness to obey the rules.

"Obedience to the rules is essential to the safety of passengers and employes, and to the protection of property.

"All employes are considered in line for promotion, and will be given increased responsibilities and compensation, as their ability may warrant and the requirements of the Company demand.

"Each employe, in accepting employment, assumes its risks.

"Each employe is expected and required to look after, and be responsible for his own safety, as well as to exercise care to avoid injury to other."

Public Ownership in Australia.

(From "Concerning Municipal Ownership.")

THE political power of the public employes in Australia and New Zealand is enormous and has naturally resulted in political jobbery in appointments. These employes have become actual masters of the labor conditions in most instances, and by their political and economic power they force all other citizens to support their demands. Unfortunately for the working man this control does not result in relatively high wages, as might rashly be anticipated.

In 1912 railway labor in New South Wales averaged $423 a year compared with $606 in Canada and about $700 in the United States for the same kind of labor. No, the exploitation comes through the fact that two men are required to perform the duties of one.

Passenger rates on the socialized railways of New South Wales average 1.04 cents per mile against 1.94 cents in Canada and 1.99 in the United States. Freight rates in New South Wales average 1.78 cents per ton per mile against $.75 in Canada and $.74 in the United States. In other words freight rates, which are always an indirect tax, are two and a half times higher in Australia than they are in the United States and Canada. In New Zealand passenger rates are about the same as in this country, but freight rates are four or five times as high. An average day's wage in the United States will buy as much passenger transportation as an average day's wage will buy in New Zealand, and it will buy five to six times as much freight transportation. Through their political influence the labor politicians in Australasia have made, as a rule, passenger rates low and freight rates high because each passenger knows what he is paying when he rides. His freight bill, on the other hand, can be divided into percentages of each article he buys and he never knows its cost. Moreover, in order to make both ends come anywhere near meeting, freight rates must be forced up.

Mr. Short, in his report for Western Australia in 1912, states:

> "There has been a constant use of political influence on the part of the men employed on the railways for more pay and less work."

In New Zealand 54,000 people are employed by the government and they hold the balance of political power. Yet, wages are lower than in this country and railway transportation as a whole is higher. The publicly owned enterprises are characterized by poor service and high cost.

Railway Rates and Profits.

(From New York Times.)

GOVERNOR WALSH, of Massachusetts, is among those who still think that there is some relation between railway rates and capitalization. His veto of the New Haven Railway bill is full of old-fashioned indignation against the extortion practised by the railways in order that they may pay dividends upon watered stock. In his own words:

"The issue is whether the public shall be called on to pay only a return on honest investment, or shall be charged with all sorts of extortion based on all kinds of artificial capitalization."

How the Governor can use that reasoning when there are over a billion of railway securities of all sorts in default is amazing. No doubt the insolvent railways would have been capable of marking up their rates so that they might pay dividends and interest upon watered stock, but there were two reasons why they did not do so. One is the regulation of rates by State and Federal commissions, and the regulation of costs by legislatures as with one accord. The other reason is that the conditions of competition would not allow the marking up of rates between competitive points. There cannot be two prices in the same market, and no more for railway rates than for anything else.

The "national question" posed by the Governor is not whether the railways shall exploit the public, but whether the railways shall be allowed to retain enough life to serve the public. The Governor will learn in time that Massachusetts alone cannot rule the New Haven Railway. It runs through all New England, and its depressed condition is due to mis-legislation as well as to mismanagement. There are few subjects relating to the New Haven on which the discordant New England States are able to agree, and there are many on which they severally disagree with themselves. Governor Walsh is unable to agree with the Legislature of Massachusetts, and yet it is necessary that Massachusetts should agree both with itself and with other New England States if they are to have such railway service as they need, and as the New Haven is still capable of giving them, if allowed, and without excess of profit for itself under the best of conditions.

The truly "national question" is whether the States of every section hate railways more than they love themselves. The States and the railways can prosper together, but there is a sure end to the process of the country living off the railways. The Interstate Commerce Commission has found the course of events beyond its control, and it is time for the Legislature to make the same discovery.

A Magnificent Crop Promised.

(From the Wall Street Journal.)

IN the past three weeks crop killers have worked overtime issuing reports of insect depredations. But after all this sound and fury, the Department of Agriculture hands us a report as of June 1 that would bring smiles to the face of a pessimist of the most dyspeptic type. Wheat, rye, oats and barley promise yields in excess of the harvest of last year; and in large measure, it is that harvest we have to thank for the present balance of trade in our favor.

Wheat, of course, attracts principal attention in the return. When the crop killing reports were at their height it was pointed out in these columns that they were at variance with the reports received from other sources, and also with those made by the railroads operating in the wheat belt; and that even if the claims were approximately correct, the country could lose 10 per cent of the wheat crop and still have an enormous total yield. The deterioration in May actually amounts to less than 17,000,000 bushels of winter wheat. This is less than two per cent of the crop, including spring wheat.

It is true that poor, "bleeding Kansas" promises only 135,000,000 bushels, instead of surpassing its last year's yield of 176,000,000 But as the average of that State is less than 75,000,000 bushels, it has little cause for despondency Probably the Kansas farmer is as well satisfied as any man in the country.

Winter wheat is now entering the harvest, and in the absence of some unlooked for calamity, always possible but not probable, the estimated yield may be taken as an approximation of the final. Spring wheat has its most dangerous period yet to face But the cool and cloudy weather in April and May gave it the right start—a strong root growth While the average condition is half a point below that of last year, the area seeded is nearly 10 per cent greater. And, as soil conditions are reported satisfactory, the outlook for spring wheat is good.

On present conditions, and making due allowance for normal deterioration until harvest, this report promises 950,000,000 bushels of wheat, 45,000,000 bushels of rye, 1,288,000,000 of oats and 197,000,000 bushels of barley. The consummation of this magnificent promise calls for only ordinary conditions. The business man will not hesitate to trust Providence that far.

You Personify the Railroads.

(From the "Southern Pacific Bulletin.")

THE trainman is constantly in touch with the traveling public. He personifies the company to those with whom he comes in contact. It is on him that the passenger places the responsibility for a safe journey; to him that the sometimes-bewildered patron seeks information as to this or that. The passenger expects courtesy from the conductors and brakemen, and if he gets it, the trainman himself and the company he represents rise in the passenger's estimation. He goes away with a good impression on leaving the train. The courtesy and pleasantness of the railroad man have added to the pleasure of his trip.

Should the trainman be gruff or discourteous, much of the pleasure of the passenger's trip has been marred and the recollection will live for a long time, thereby driving business from the company. All of us get out of bed on the wrong side some mornings. If we didn't we wouldn't be human. But in cases where pleasantess is vital to our best interests, we can force ourselves out of the grumps. A trainman may sometimes wonder at the apparent foolishness of a question, but let him remember that the other man is paying a tribute to his intelligence when he puts the query.

Ford Traffic.

THE Ford Motor Company has produced another model. This time, however, it does not happen to be an automobile, but takes the form of a special bulletin which, we are informed, will be issued at intervals from the General Traffic Department of the company, and will be devoted wholly to Ford traffic. The object of these bulletins, it is announced, is to encourage closer contact between the general traffic department and the assembly branches. Evidently the material covered in the bulletin is in strict conformity with the usual Ford guarantee and "Ford Service." This presumption is based upon the following paragraphs taken from page 8:

"Transportation companies, as a rule, want to be fair, and all your company wants you to do in dealing with carriers, is to protect yourself from honest criticism. If you protect yourself, you are protecting your company.

"If you are now handling the traffic at a branch and have not had a proper appreciation of the importance of your work, wake up, acquire some initiative, for your value to your employer is measured by how many practical ideas you can create. Think, then Create.

"Too many people, as an excuse for their own mental inactivity, accept as true Shakespeare's suggestion that thinking men are dangerous. He didn't mean all thinking men, however.

"Thinking men are only dangerous when they don't think far enough ahead and along the right lines.

"Give the best you have and never let your work grow faster than you grow.

"Don't be afraid to ask advice. To seek advice isn't a display of ignorance, but instead, it is a sign of wisdom.

"The Traffic Organization of the Ford Motor Company should be the best in the world.

"The secret of Business Success is: Be Ruler Over Your Work—Don't Let It Rule You."

The Revenue Requirements of the Western Railways

Note.—The following extracts are taken from the brief filed on June 22nd with the Interstate Commerce Commission, by C. C. Wright, chairman of the Attorneys' Committee, having in charge the presentation of the Western carriers' advance rate case.

THE question naturally divides itself into three interrogatories, viz.:

(1) What is the revenue of the carriers and what return are they receiving upon their property?

(2) What is the cause of the low returns?

(3) What ought the carriers to earn?

Revenues.

We submit that the showing as to the 41 roads, which has been presented by the carriers, is the fairest way possible in which to determine the actual revenues of the roads in the territory, throughout which the advance in rates is proposed. It is true that there are some small lines which are omitted and that there has not been included in this group some which are known as transcontinental lines, and which will receive an incidental, small advantage by the advance. It is true, some of the lines extend into territory outside of that involved, but sub-groupings make it plain that the 41 roads reflect the condition in the territory.

Attention is particularly directed to the exhibit in relation to the net operating income of the various years. It is shown that the operating revenues for the period 1908-1914 increased $1,348.42 per mile of road, as compared with 1901-1907, but at the same time, the operating expenses, hire of equipment and joint facilities increased $1,407.34 per mile of operated road. The taxes in the second period, over those in the first, increased $115.17 a mile, while the rental and net lease of road decreased $20.95. As a result, the net operating income of these roads, on an average for the last seven years, has been $153.14 less than the average of the seven years immediately preceding. If the last six years are taken, as against the six years prior to that period, the results will not be materially different.

It will be noted that in only four of the years in the last seven, has the net operating income per mile operated, equalled the lowest net operating income during the prior period of seven years. In no year in the last seven has it equalled the highest yield in the prior seven years. The average for the second period was $2,045.34, as against $2,198.48 for the first.

It will be noted also that in 1909 and 1910 the return was much greater than in 1914. In three of the last seven years, the net operating income per mile has been less than $2,000, while it was less than $2,000 in only one year in the first period, which was the year 1904, when all business was paralyzed. If one compares the year 1913, one of large volume of business, with the year 1907, it is readily seen that the operating income per mile for 1907 was $260 in excess of that most prosperous year in the latter period.

If a comparison is made of the last five years, that is, 1910 to 1914, inclusive, with the five years immediately preceding, it will be seen the decrease is even greater than in the preceding seven-year period, so that any grouping of the years which may be selected indicates a declining net operating income per mile of road. Comparing the lowest year in the latter period with the lowest year in the first, shows a decline of $159.93. Comparing the highest year in the second period with the highest year in the first period, shows a decline of $285.63. A like comparison might be made by taking the two and three lowest in each period, or the two and three highest in each period.

The same story is told by Exhibit 10, in a comparison of ratios of operating expenses to revenue. In no year in the last period has the operating ratio been as low as in the former period.

The study of the variations of operating ratios, as made by the Commission in connection with this case, is both interesting and illuminating. As stated in the resume presented by A. M. Bean, one of the examiners of the Commission, it discloses that while exceptional conditions on individual roads may in part account for unusual variations in the operating ratio, there are certain general conditions which operate alike upon the different roads, which would have the tendency to increase the operating ratio. Among those are included the increase in wages; increase in price of fuel; increase in cost of ties; larger expenditures required to properly maintain road and equipment; increase in taxes; more numerous requirements by state and interstate commissions; decreasing revenue due to reductions in rates, and to the introduction of depreciation charges. These are all general in their character, and there is nothing in the record to indicate that there will be any change which would counteract such increased expenses. The only one of the general reasons why the operating ratio has increased which may be reasonably expected to be remedied is the one mentioned as the decreased revenue due to reduction in rates. That seems to be the only one in which this almost steady increase in operating ratio may be checked without serious detriment to the public service.

It would seem that these exhibits lead irresistibly to the conclusion that the net operating income per mile of road of the carriers is declining. It is shown that in 1914 it was only $1,963.36 per mile of road and that for the average of the last seven years it was only $2,045.34.

If the road and equipment cost, as shown in the exhibits and from the books of the carriers, represents the value of the property, it will be seen that the earnings for the last seven years yielded a net return of 4.19 per cent. In the year 1914, the earnings returned only 3.81 per cent. A comparison of different years in the same period demonstrates the decreasing rate of return, as well as the insufficiency of the revenues. The highest year in the first period was 1907, when it was 5.64 per cent, and the highest year in the second period was 1909, when the return was 4.61 per cent. During the first period, in no year did the return fall below 4.55 per cent. In only one year in the last period did it reach that figure; that is, there is only one year in the last period when the rate of return was as high as the lowest year in the first period. If comparison is made with the earnings in 1914 and the year immediately preceding, it will be seen that the returns had fallen from 4.44 to 3.81. The reports of the fiscal year 1915, so far as yet received, would indicate that 1915 was no better than 1914. The last five years of this period may be compared with any other five years that may be selected, but still the rate of return is less in the last five years. Even the panic year of 1904 was better than any year since 1909.

This showing of the carriers is not met by any counter evidence, because it cannot be. By grouping of strong roads protestants were able to show an earning above 6 per cent on the group selected, but they were not able to show a return of seven per cent, even after making deductions from road and equipment of amounts which they had pointed out as, in their opinion improperly included, and without adding anything for working capital, during any of the periods. Even under the showing of selected groups by the protestants, the same downward trend was apparent.

It is proper to discuss the causes of this declining net operating income from rail activities, and determine whether it is due to the fault of the carriers, or to causes beyond their control.

Attention is here directed to the fact that the carriers have been steadily investing more money in the property, amounting in the last seven years to more than a hundred million dollars a year for additions and betterments to the existing roads. They have been steadily improving the character of their railroads and equipment out of the money so expended. The evidence, we believe, fairly demonstrates that the roads in question in this case have been meeting the public demand and improving their service from year to year; they have increased their efficiency by all known means within their power. The density of traffic per mile has increased, and yet, notwithstanding all of these things, which make for efficiency and lower costs, the cost per unit of service has increased.

It is true that the operating revenues of the lines in question have increased, but it is also true that the operating expenses and the taxes have increased at a faster ratio. The revenues per mile of road increased in the last period over the first, on a yearly average of $1,348.42, but the operating expenses, exclusive of taxes, rental, etc., increased $1,407.34; the increase in taxes was $115.17 per mile and the decrease in rentals $20.95 per mile, which results in a net decrease on the average for the last seven years, as compared to the seven years prior thereto, of $153.14 per mile. It thus is apparent that the carriers have not been able by the means employed to meet the increasing costs out of increasing revenues.

It is difficult to determine accurately the extent to which each of the different causes has contributed to this result, but there are some things that can be pointed to as potent factors.

By exhibit 12 it will be seen that the ton-miles per mile of road had increased from an average of 613,059 tons in the first period, to 709,889 tons in the second period. It appears, however, that the increase in the first period was much more rapid than in the second. The average of the second period over the first was approximately 13.5 per cent. The average of the tons per train mile in the first period was 266.78, and in the second, 316.54, which was aproximately 18.5 per cent. It will be noted, however, that the greatest increase was in the last period.

Notwithstanding the increased capacity and weight of the freight cars, it will be seen that the increase in the tons per mile, has been less than 10 per cent; and exhibit 14 shows that there has been very little increase in the revenue tons per car mile since 1907. This is partly accounted for by the fact of the low minimums which are enforced by various state commissions, and partly by the fact that with the diversified character of traffic and the necessity of special equipment, the empty car mileage has increased.

That the labor costs have been a material element in the increased expenses of the carriers is not only apparent from the special study of operating ratios, which was made by the commission, but appears conclusively from exhibit 15. This exhibit shows the increase in wages paid, year by year, on account of the increase in rate of pay. The exhibit was prepared to include general officers and also excluding general officers. It will be noted that the increase has been greater when the general officers are excluded than when they have been included. That is particularly noticeable in the last seven years. The increase in labor costs has not been uniform. From 1902 to 1903 there was a very large increase, being a little over six and one-half million. The increase for 1903 and 1904 was over four and one-half million. There was a material increase from 1907 to 1908, being nearly six million, but in 1909 there was a decrease of nearly two and one-half million over 1908. In 1910 the increase was over fourteen million, and in 1911 over twelve million. It will be noted that this increase came at about the time of the decision of the commission in 1910.

This exhibit shows that the increase in expenses, due to increase in the rate of pay for employes, was in the year 1914 over 1900, $85,167,085.95.

On exhibit 17 is shown the increase in taxes and the increase due to the advance in the rate of taxation. It shows that taxes in 1914 were $17,628,142.61 more than they would have been, if computed on the rate of taxation in 1901, or $179.06 per mile of road operated.

The increased labor costs, due to the increase in rate of pay, was $865.11 more per mile of road operated in 1914 than it would have been under the 1900 wage scale. This makes a total increased operating expense per mile of road operated, due to increases in the rate of pay for employes and the rate of taxation by states and municipalities of $1,044.17 per mile, which would be equivalent to a return of 2.02 per cent upon the cost of road and equipment. In other words, if the same wage scale and the same rate of taxation had been applied in 1914 as in 1900 and 1901, the carriers would have been able to have earned a return of 5.83 per cent upon the cost of road and equipment, instead of 3.81 per cent. This very definitely locates a large element of the increased cost.

Exhibit 18 shows in detail the increase in cost of material and other items. Attention is directed to the fact that since 1909 the cost per mile of road for material and other items has increased more than $400.

A study was made to determine as far as possible the relation of the maintenance costs. It was a recognized fact that maintenance costs, particularly of equipment, has increased in the last few years.

The ratio of maintenance of way and structures to the revenue has decreased in the last seven years over what it was in the preceding seven years and there is only a small increase in the ratio of maintenance of way and structures expenses to the cost of road and equipment. On the other hand, maintenance of equipment shows that it has increased faster than the revenue and faster than the cost of road and equipment. For the first period the total maintenance costs were 26.69 per cent of the revenue, and in the second period 29.24 per cent of the revenue. In the first period the maintenance expenses averaged 4½ per cent of the value of road and equipment, and in the second 5.29 per cent.

An examination of this exhibit, however, will disclose a rather uniform advance. It does not indicate an abrupt advance, due to change in accounting methods, in 1908. The increase, 1901 to 1907, in maintenance of equipment, amounted on these roads, to approximately $54,000,000. From 1908 to 1914 the increase was approximately $52,000,000. The gradual increase of this cost of maintenance of equipment would indicate that it was not due to the latter period to the depreciation account, but was the result of far-reaching causes.

Maintenance of equipment shows a much more radical increase. It will be observed, however, that maintenance of equipment per mile of road shows a steady advance. There was no sudden advance from 1907 to 1908. In 1906 maintenance of equipment per mile of all tracks operated was $809.22, in 1907 $894.01, in 1908 $849.08 and in 1909 $887.10.

In Wettling's Exhibit 29 the carriers assembled the amount of maturing obligations for the next seven years. This was for the purpose of indicating that the carriers involved in this case must renew a large amount of obligations or place new securities beyond the amount necessary for additions and betterments each year. It is true that the building of new roads in this territory has almost entirely ceased. It is not believed that the public is going to be satisfied unless additional lines are constructed. Every indication is that it will require as much for additions and betterments annually in the future as it has for the last seven years, therefore these various carriers must raise at least $100,000,000 a year from some source, in addition to the amount necessary to refund or refinance their maturing obligations. For 1915 they would require over $155,000,000 for additions and betterments and to take care of maturing obligations.

A noticeable fact in this connection is that the increase in capital liability has been largely made by the increase of interest-bearing obligations, rather than by the increase of stock. Exhibit 28 shows that in 1910 the capital liabilities represented by stocks were 46.33 per cent; by bonds 53.77 per cent. In 1914 this had changed so that the ratio of stock to total capital liabilities was only 37.74 per cent and the ratio of bonds and funded debts had risen to 62.26 per cent.

The facts disclosed cannot help having an unfavorable effect on the borrowing ability of these carriers. We care not whether you call it credit, or not. They will not be able to borrow additional capital on as favorable terms as they would if their proportion of property represented by the bonds and outstanding interest-bearing securities was less. When we speak of the impaired credit of the railroads, we do not refer to the interest rate on underlying securities, which represent less than 50 per cent of the value of the property. What we mean, however, is that for new money and for money which is needed for additions and betterments and the development of the property, the carriers are not now able to borrow on as advantageous terms as formerly; that they have about reached the limit of their borrowing capacity on top of their present debt; and that they are not able to float their stocks, because of insufficient revenues to guarantee dividends commensurate with the risk.

Statisticians may make exhibits without end, but they can never overcome the fact that any company, be it a railroad, an industrial or a public utility company, can not have as good credit with a mortgage covering 65 per cent of the value of its property as it would have if its mortgage covered only 50 per cent of its property and the increasing per cent of the interest-bearing debt must obviously affect its credit. This fact is aggravated by the large amount of short time obligations entering into the aggregate of its interest-bearing obligations.

While we have not laid any great stress in this case upon impaired credit, we do insist that the evidence shows that the ability of the carriers to borrow new or additional money and the ability of the carriers to raise money by the sale of stocks is greatly curtailed; that higher rates must be paid and that it is increasingly difficult to secure money from any of these sources. This, we believe, to be largely due to the fact of a declining net revenue.

The only authoritative statement of the rate of return to which a carrier is entitled is found in the decisions of the courts in cases where the court has been asked to enjoin the enforcement of legislative acts or the orders of commissions, reducing rates or curtailing the revenues of the carrier. These cases must, of course, be based upon individual conditions, i. e., the court can consider only the rate of return to be received by the particular line asking the injunction.

The question before the Commission, in considering an application of this kind, is, of course, much broader. This undoubtedly has been recognized by the Commission, but we desire to suggest, in this connection, that when they are considering the reasonableness of rates, the rate of return upon a single line, or upon two or three lines, operating in a territory, can form no criterion as to whether or not the rates are reasonable. This is apparent from the fact that one line, under the same rates, may earn 8, 10 or 12 per cent upon the value of its property, while another line may earn only 4 or 5 per cent upon the value of its property. It is in recognition of this fact that we have presented the matter as though all the lines in the territory were operated as one line. This must rest upon the assumption that the maintenance of these lines is all necessary and proper.

The carriers in this case have based their contention upon the right to earn at least seven per cent upon the value of their property. In the Minnesota Rate Case, the circuit court held that the carriers in question in that case were entitled to earn at least seven per cent upon the value of their property. While the case was reversed by the Supreme Court of the United States, the position of the circuit court as to the rate of return to which the companies were entitled was not reversed nor criticized. In a case, not yet reported, which has been decided, pending this present hearing, by the district court of Arkansas, it was held that the carriers in that section had the right to earn not less than 7½ per cent upon the value of their property. These and other cases indicate very clearly that the carriers in the territory in question, as a minimum, are entitled to 7 per cent upon the value of their property.

The advances in this case were expected to increase the revenues of the carriers by about $10,000,000 per year, as stated in the opening. The evidence and a more careful analysis of it discloses the fact that the estimate was too large. If the increase were $10,000,000 a year, it would make the full net operating income of these roads only $203,286,463.22, and would increase the rate of return by only a small fraction of one per cent. In round figures, the rate of return in 1914, if the proposed rates had been applied, would have been four per cent and such rate of return must be considered to be below anything that even the most radical could claim to be reasonable. It would not pay the interest on the bonds, assuming that 100 per cent value of the property could be bonded at the rate of interest accruing on the underlying mortgages.

In this connection, and to meet what appears to be the opinion of the Supreme Court in recent cases, the carriers have attempted to separate the costs of the freight and passenger business and ascertain the rate of return upon each class of business. There being no authoritative method for the separation of expenses the carriers used various methods and any or all of them are only approximate. We believe them to be such reasonable approximations that they may justly and rightly be used as the foundation for an opinion.

Under these bases, as shown by Exhibit 30, the ratio of expenses, including taxes, hire of equipment, etc., to revenue on the freight business, runs from 75.14 to 76.98, and the rate of return under these different bases, on the freight business, varies from 4.23 to 4.68 per cent, so that on any of the bases used there is such a margin of insufficiency of return as to render negligible any possible errors in the bases used.

From this evidence, it seems that but one conclusion can be drawn, and that is, the increase in rates for the purpose of increase in revenues has been justified. If this conclusion is correct, it remains only to determine in what place and upon what commodities the advance shall be applied. It would be impracticable to make the advance of rates in either of the sections of the territory involved upon such commodities as grain, live stock and packinghouse products, without making a corresponding advance in the other portions of the territory.

As to the selection of commodities, there will always be difference of opinion. The striking thing about this hearing has been that each protestant has been vigorous in asserting that the advance ought to be made on "the other fellow's commodity." The carriers in this case have exercised the best judgment they had, having in view the raising of additional revenue and the distribution of the additional charge to the public. The traffic managers familiar with their territory, know very well that there are certain commodities and classes of commodities that cannot stand an advance. If, therefore, there are certain rates which from competitive or commercial reasons, cannot be advanced so as to afford the same ratio of profit to the carriers as the other rates, it constitutes no reason for denying the advances on other commodities. Neither does this necessarily mean unjust discrimination.

The attempt in this case has been to select those commodities which will produce the needed revenue, with the least hardship, and to so distribute the advances that they may be borne by the public generally, rather than by any separate class. It has not been thought practicable at the present time to advance the class rates in the western territory. They have been, many of them, fixed by orders of the commission, which would prevent an advance, and beyond that, the class rates in the western territory have not been so carefully and uniformly adjusted as in the east.

We beg leave to suggest that the act of Congress in relation to regulation of commerce fully contemplates that the carriers themselves shall retain the initiative in the matter of fixing rates, and the power of the commission is intended to be regulatory only, for the purposes of seeing that excessive or extortionate charges are not made by the carriers, and preventing undue or unjust discriminations. The law does not authorize the commission to fix rates. If, therefore, the initiative in fixing rates is to be left to the carriers, they must be allowed some discretion and must be expected to exercise that discretion within reasonable limits. It would seem that the duty of the commission in passing upon an application of this kind, somewhat general in its character, should be limited to the determination of whether the carriers have exercised a reasonable discretion.

Principles Affecting Rate Regulation

Note.—Some months ago, the New Mexico Legislature adopted a resolution asking the New Mexico Commission to explain why it has not taken steps to reduce passenger fares to New Mexico. The Commission replied, and the Legislature took no further action. The following paragraphs, which are from the Commission's report, are a striking indication of the attitude which is being assumed by progressive state railway commissions, in the consideration of rate questions.

RAILROADS, for the purpose of this Commission, may be termed merchants. The only article which they have for sale is transportation, and one of the fundamental and underlying principles recognized and observed in arriving at the reasonableness of the price of any article or commodity for sale, or the fare or rate of a railroad or other common carrier, is the cost of production. This well-known principle has been recognized, observed and taken fully into consideration by the Interstate Commerce Commission and by all state commissions in the determination of a basis for the issuance of orders affecting freight rates or passenger fares throughout the entire Union.

Another very important factor entering into the determination of the reasonableness of a freight rate or passenger fare is the density of population and traffic.

Another Feature.

A further very important feature is observed, namely, the wholesale proposition, which is an underlying proposition of all business, considered not only in the United States but in all civilized foreign countries as well—if you purchase a car of flour you will naturally receive the benefit of a lower price per sack or per hundred than if you buy a single sack. If you buy a hundred yards of goods in a dry goods store, you will expect a lower price per yard than if you purchased a single yard, and so on with all other articles. This principle of commerce is too well known and recognized generally to require any lengthy comment herein. Railroads being merchants in this sense, in line with the universal principle of commercialism just mentioned, naturally grant a lower passenger fare when the transportation is purchased in large quantities, such as three thousand miles, for instance, than if the purchaser procured transportation for one hundred miles or less; and what is true of passenger fares may also be said of freight rates, as we believe that every member of your honorable assemblies is well aware of the fact that a lower rate is maintained by all carriers in carload quantities than can be obtained in less than carload shipments on practictally all commodities.

An Approved Principle.

This principle is approved and sanctioned by the courts and by the national and all state commissions in the United States. And this feature is touched upon herein for the reason that there seems to be some question as to why a purchaser of a mileage book for three thousand miles for seventy-five dollars, or, in other words, at two and one-half cents per mile, should be allowed to travel cheaper than a passenger who had occasion to travel only a few miles, and who paid the regular fare; and we believe, therefore, you will readily appreciate that the railway company can afford to sell transportation at wholesale at a less figure than for a few miles.

It should be borne in mind, and the fact is here emphasized, that the cost of operating either freight or passenger trains in the state of New Mexico is far greater than the operation of trains in the prairie states.

It being understood that the cost of production, or, as we shall now term it, the cost of operation, together with the density of traffic which is controlled by the density or sparsity of population are the principal features entering into the determination of a rate or fare, we shall now, without producing exhaustive or tiresome statistics, endeavor to briefly show some items of relevant data developed by us in the course of our investigation into the matter at issue:

	Population Per Square Mile
Arkansas	30.
Arizona	1.8
California	15.3
Colorado	7.7
Illinois	100.6
Kansas	20.7
Louisiana	30.5
New Mexico	2.7
Oklahoma	23.9
Oregon	7.0
Texas	14.8
Utah	4.5
Washington	17.1
United States	30.9

Density of Population.

This statement brings out clearly the density and sparsity of population of the states shown, indicating that New Mexico, with a population of 2.7 per square mile, is the lowest, excepting Arizona, which is a close second with a population of 1.8 per square mile. This table will convey to you an idea as to the density of traffic in this state as compared with other states having a fare of three cents per mile. The reports of the Santa Fe Company show that the average distance traveled by passengers locally within the state of New Mexico is fifty-four miles and that there is an average of only one state passenger carried on each train operated, while on the same train an average of fifty-five passengers are carried through the state. The statistics of the Santa Fe further show that the expense of running passenger trains through the state of New Mexico is one dollar and nine cents per train per mile, and an analysis of the reports of their operations in New Mexico for the fiscal year ending June 30, 1911, shows that the operating expense per passenger per mile during that period was three cents, this without any allowance for taxes, interest or return upon investment.

Cost of Taxes.

Adding there the cost of taxes and a return of six per cent upon the assessed valuation, the total costs of hauling a passenger one mile in the state of New Mexico is four cents and three mills, or, in other words, a loss of three mills or over per passenger, and taking into consideration the fact that an average of only eight New Mexico local passengers are handled on each passenger train of the Santa Fe Company, or thirty-two cents per train per mile and the cost of operating such trains through New Mexico being $1.09 per mile, leaving a deficit of 77 cents per mile, it will be readily seen that the Santa Fe or any other company could not afford to run their passenger trains in New Mexico for strictly local travel.

Another very important feature in connection with this situation is that the business of all railroads in the United States has been on the decline for the past two years; and since the outbreak of the war in Europe the freight business of Western lines, particularly those serving the business of New Mexico and Arizona, has practically been paralyzed, for the reason that a number of the great copper mining industries were compelled to close down on account of not being able to export their products.

Markets Affected.

Furthermore, the alfalfa or hay business has been adversely affected. As a matter of fact there has practically been no market for this product for seven or eight months, due to the European war and other causes. All these conditions naturally had a tendency to reduce the revenues of all railways operating in this state, and it has been practically impossible for any of the railroads to borrow money for betterments or other purposes; and the result has been that the railways were compelled to retrench in the way of reduction in forces and necessarily to lay off a great number of men.

This is a condition of affairs that is generally known, and a further fact that is also familiar to the general public is that the Interstate Commerce Commission a few months ago granted practically a straight five per cent increase in freight rates for all railway lines operating east of the Mississippi River; and from page 407 of the opinion handed down in that case, No. 5860, decided July 29, 1914, we quote as follows:

"Increases in passenger fares have recently been made in New England, following conferences between the state commissions, the carriers and representatives of the public, and they appear to have been cheerfully acquiesced in by the traveling public. Extra charges for special accommodations have also been made.

"We are confident that if these statutory fares are clearly shown to be unduly low to the carriers the people of other states will cheerfully acquiesce, as the people of New England have done, in reasonable increases, and that the necessary legislative authority will be promptly given. The traveling public is giving expression to its demands for better service, better accommodations, and for the adoption by carriers of all the devices that make for safety. A public that demands such a service cannot reasonably object to the payment of a reasonable compensation therefor."

Eastern Railroads.

Passenger traffic under the most favorable conditions is unremunerative. Good judges and authorities have frequently given opinions under oath that the passenger business of any and all lines west of the Allegheny Mountains does not earn sufficient to pay its proper proportion of operating expenses, taxes and fixed charges. Consequently, when upon a thorough investigation, this commission found the conditions existing in New Mexico as herein described so far as the passenger fares were concerned, it was deemed advisable to allow the matter to rest for awhile, at least, pending the clearing of the financial condition throughout the United States, as we thought that the interests of the majority of the citizens of this state would be better served by not crippling the railroads, which would necessarily mean a further reduction in the working force; for, as stated, it has been impossible for the railroads to borrow money, and all operating expenses must be paid out of the earnings.

Illegal Railroad Legislation

By T. S. FORD, AUDITOR, SAN ANTONIO, UVALDE AND GULF RAILROAD.

RAILROADS pay every day in the year claims for loss and damage that they have no business to pay, extorted by modern illegitimate legislation. The following sample is a Live Stock Claim actually presented and paid (compromised in part). It is shown herein how such laws can, by common-sense analysis, be wiped off the slate. Following is the claim as actually presented, with the names of principals changed:

Claim Agent, E. A. S. Y. R. R. Co.
Claim Agent, M. A. R. K. R. R. Co.
Dear sirs:—

We submit for your consideration and adjustment, claim in favor of Mr. Soakum against your roads for damages to 12 cars of cattle, shipped from Blanktown, Texas, to National Stock Yards, Ill., which were sold May 26, but which should have been sold May 25, they being delayed en route, and roughly handled, bruised and crippled. By reason thereof and the long delay, lost flesh and became drawn and emaciated and the market having declined Mr. Soakum claims 30 pounds per head shrinkage on 226 steers (note: he does not know whether they shrunk 30 pounds or 10 pounds or gained 30 pounds each, T. S. F.) at $7.55 per hundred pounds and 25 cents per 100 pounds decline in market, and deterioration in value on account of condition, on 221,500 pounds, weight of cattle when delivered; extra feed en route $45.00; total damages claimed $1,110.64. You will kindly acknowledge receipt of this claim, with your claim number, and advise of your adjustment within 30 days from date hereof.

Yours truly,
Ketchum, Holdum & Skinum,
Lawyers.

What follows herein with reference to such live stock claims applies to similar claims covering any marketable produce.

There are three principal things that kill this claim by common-sense analysis. The broad principle is that a railroad company is not in the commercial business and you cannot make a railroad a party to a commercial transaction.

First, there can be no liability against a railroad company for dead or crippled animals transported, not due specifically either to some train accident or defective equipment. If animals die from other causes it is due to physical inability to stand the journey or some other cause the liability for which the owner must assume and recognize beforehand.

You might as well say, if a man ships a coop of chickens and one dies the railroad is responsible. The railroad is not responsible because there was no more reason why the one chicken died, than that all the chickens should have died. The dead chicken had the same chance to live as the others, so far as any liability of the railroad is concerned. Passengers die every day on railroad trains. It is nonsense to say the railroad killed them. It may be true or not true that had the passenger remained at home he would have lived. He assumed all the liability of death from inherent weakness or disability the minute he boarded the train, and he took an equal chance with the other passengers. So with a critter; because a critter dies on the train, it does not follow the liability is upon the railroad company. The railroad could not possibly kill it, if a fit subject for shipment in the first place, nor injure any particular individual from any cause whatever other than train accident or defective equipment. There must be a specific cause of death or injury. Train accidents or defective equipment are specific and might cause death or injury, but you cannot deal in generalities and say the railroad is responsible for any and every kind of an injury or death of a critter in transit any more than for a dead chicken or a dead passenger. The chicken, the critter, and the passenger all had the same chance to live as the others of their kind, barring train accidents and defective equipment. The logic of this must convince any mind capable of common-sense analysis. If you can make a railroad pay for a dead critter that happens to die on the train, you can make the railroad pay for the dead chicken or the dead passenger.

Second; railroads are not responsible for declines in market prices of live stock, or any other produce or article shipped. You cannot make a railroad pay for declines in expected market prices unless you pay the railroad for increases in expected market prices. If you make them pay the one, you must pay to them the other, as the two things offset each other. It is illegal to require railroads to pay the one or pay to them the other, because railroads are in the transportation business and not in the commercial business; and when you make them a party to anything of this kind, you make them a party to a commercial transaction and it is contrary to their charter as a corporation and the whole thing is foreign to common sense.

When you make a railroad party to commercial transactions of this kind you must make it a condition of the bill of lading and require the shipper to declare at the time of shipment, his expected market price, and the agent of the railroad company must be provided with daily market reports and study them and decide whether the railroad company in accepting this shipment has an equal chance of a rise in market prices to offset possible decline and then submit to the transportation department whether the railroad had better accept the shipment or not and the accounting department must keep a record of every shipment of marketable produce and figure out and report whether the railroad company gains or loses by the transaction, and how much, so that next time the agent and the transportation department will know whether or not to accept a shipment on the prices expected by the shipper. A beautiful and logical proposition surely to contemplate in the railroad business, and yet this is exactly what it means and is a common-sense analysis of it.

Third; you cannot hold a railroad responsible for shrinkage in weight of live stock en route. You can give the shipper privileges of feeding his live stock en route to keep them alive and in marketable condition, but you cannot ship live stock any considerable distance or any distance at all, but they will decline in weight, and therefore that is a risk assumed by the shipper; for if you hold the railroad responsible for the shrinkage in weight, you must pay the railroad for any increases in weight provided you allow the shipper to feed and water his stock en route, or if he feeds or waters them at destination before he sells them.

And every little shipping point must have suitable scales for weighing and the exact weight of every shipment ascertained before boarding the cars. The whole thing is governed by the principle that a railroad is not in the commercial business, is not entitled to receive profits from merchandise transported, and it is moreover foreign to common sense.

It makes no difference what a law is. Because it is the law doesn't necessarily prove anything. If a law does not contemplate these broad principles and will not stand common sense analysis it must be amended accordingly. You cannot have a one-sided law. It must work both ways or it is not a law.

Railroads do not go to the bottom and analyze these things as they should. They do not go far enough into legal questions. If they would back their efforts by one half the steam of the average legislator who makes the laws and can talk 18 hours straight on any subject and not repeat himself once, they would get somewhere.

The following provisions should be incorporated in live stock bills of lading. They are equally fair to the shipper and to the carrier and that is what bills of lading should be:

1. This company will accept and transport this shipment of live stock to the best of its ability under existing conditions as to equipment service.

labor service, rules and regulations and will be responsible for actual physical damages to such live stock caused by train accidents or defective equipment while said live stock is in its care.

2. This company will not be responsible to the shippers, owners, forwarders or receivers of this live stock for any physical damage such as dead or crippled animals due to or resulting from any causes other than train accidents or defective equipment; all while said shipment is in the care of this company; nor will this company be responsible for any damages or losses claimed, from any causes whatsoever, on account of any decline or decrease in the market prices received for said live stock as against the market prices expected; and correspondingly will claim no share of the profits from shippers, owners, forwarders or receivers by reason of any rise or increase in the market prices received over the market prices expected for said live stock, whether such increases result from deliveries earlier than expected or result from any other causes. In other words, the market prices are no factor in this contract and this company neither controls, directly or indirectly, nor is interested in the market prices in any manner whatsoever, but is interested only in transporting this shipment in good faith and disposing of same to the best of its ability as a common carrier, as its facilities may afford and as good fortune may favor such intention and endeavor; and in justice to all parties interested in this contract, it shall be and is understood that the declines or decreases in expected market prices are a risk against which are the possible rises or increases in market prices; and that the said elements of increase and decrease are therefore risks wholly assumed by the shippers, owners, forwarders or receivers of this live stock at the time this shipment is delivered to this railroad company.

3. This company will not be responsible for any shrinkage in weight, either actual or alleged, while this shipment is in its care, nor claim any profit from the increases in weight due to any privileges, conditions or causes while in its charge, and each and all of the preceding conditions and all other conditions of this contract are understood and agreed to by all parties hereto, regardless of any law, decree or court decision to the contrary notwithstanding.

4. The shipper in consideration of this non-liability on the part of the railroad company, may exercise his option to unload, feed, water and rest his live stock at any point on the line of this company where suitable stock-yards and facilities exist, providing that any delays due to such unloading, feeding, watering and resting beyond the legal requirements, shall be with the permission of this company, and of all the other shippers of live stock in the same train, and providing that not to exceed ——— hours are consumed in any one stop. Any expenses incident to such unloading, feeding, watering, and resting shall be borne by the railroad company when due to train accidents or defective equipment, but otherwise the expenses shall be borne by the shippers, owners, forwarders or receivers.

5. Shippers may, at any station on the line of this railroad company having suitable stock pens or facilities, unload and leave any dead, crippled, sick, unruly, surplus or other stock, in transit, at his discretion, and may put the same in the stock pens of this company, but such stock must be cared for at the shipper's risk and expense and no liability or damage charged or incurred against this company whatsoever arising on account of such privilege or action unless due to train accident or defective equipment, and it is further understood that the freight charges will be paid on such stock so left, according to the company's legal tariffs.

The presentation of illegitimate or fraudulent claims against railroads should be punishable as a fraud, when such claims are proven to be false wholly or in part, and railroads should have recourse against the claimant for expenses entailed in the defense and treatment of such claims.

Regulation or The Public Ownership of Railways*

By Burdette G. Lewis.

RICHARD T. ELY has been accustomed to state year by year to his students at the University of Wisconsin, during the course of his lectures upon "Property and Contracts" that private property in severalty, particularly private property in land, has never had a chance to prove itself for the principal reason that it is an institution of such recent origin. To those Americans who are accustomed to think that all progress began and continues in America, this is a hard saying. For they ask—"Hasn't private property in land existed since the founding of the American colonies from 1620 on?" To these modern Americans it seems preposterous to argue that a period of two hundred and fifty years is a very short time as contrasted with the whole stretch of years during which private property was developing as an offshoot of public or national property.

To many Americans it at first sounds foolish to argue that private ownership of railways has never had a full opportunity to work itself out. But such is the fact, if we give the matter second thought. In truth we have never had anything but quasi-private or quasi-public ownership of railways since the era of railway development began. Therefore, the question for consideration is upon which phase of ownership shall emphasis be placed. Shall it be upon public or upon private ownership? It seems to me that Judge Martin A. Knapp, former chairman of the Interstate Commerce Commission, was correct in pointing out as early as 1906, that emphasis should be placed upon development of railway facilities. It is, therefore, the contention of this paper that emphasis should be placed first upon development of present and additional facilities, and second, upon control of such development in the interest of the nation, and third, upon ownership as one of the important bases of control.

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*Paper delivered before the Railroad Men's Improvement Society, New York, Thursday, March 11, 1915.

THE NEED FOR ADDITIONAL FACILITIES.

A careful survey of railway needs is not necessary, for these needs are so obvious that a few examples only may be referred to. Railway development was practically at a standstill in 1914, notwithstanding the fact that fruit was rotting on the ground in the central west, largely because the railroads did not have a balanced load so that rates could be put low enough to bring these fruits to market. For the same, and other reasons, grain was congested in all the elevators and terminals. In fact, there is scarcely an American city of any size which has adequate terminal facilities. Nowhere is this need more apparent than in New York City, where the cost of shipping goods from Buffalo to the Jersey shore is less than the cost of delivery from that point to the factory or consumer in Greater New York.

What railway system is there which does not need additional tracks, additional equipment, additional terminals, vast expenditures for rehabilitation and solidification, and adequate funds for new lines, particularly in the South, where new agricultural and commercial development and the opening of the Panama Canal are daily showing how pitifully inadequate are the present facilities of railway systems, which tap or extend through the South and Southwest.

THE NEED FOR NEW CAPITAL.

Assuming then, without further argument, that the first great need is for additional facilities, we may ask next—Where is the capital to come from to finance these extensions and this rehabilitation? Shall it come in the form of loans, or shall it come from revenues—that is, from passenger and freight rates? If from loans, where is the capital to come from? If from rates, is it to come from higher rates or from increase of traffic brought about from heavier average train loads, and by a more balanced traffic both ways? The great European war, and our experience with its blighting effects upon business, indicates that another Pennsylvania European loan is out of the question, and that ocean traffic still is and will continue to be so precarious as to interfere seriously with inland domestic traffic conditions and to prevent the development of balanced traffic conditions for a long time to come.

It seems, therefore, that the progress of events has changed the character of the railway problem in the United States. Particularly, policies and plans for development and control. Equalization and reduction of rates have filled the boards for a long time but now must yield space to the need for additional facilities. That means that our people must choose between low rates, with little or no development, and present or higher rates with additional facilities. The demand for capital for industrial development in order to make us independent of Europe and to allow us to supply exhausted Europe with raw materials and manufactures is, and will continue to be great enough to interfere seriously with railway development, based solely or largely upon domestic loans.

It seems obvious, therefore, that some of the $60,000,000 required by the New York Central for west side terminal development, some of the $40,000,000 to $60,000,000 required by the Jersey roads for much needed terminal facilities in and around New York, and some of the $40,000,000 to $60,000,000 required by the trunk line railways for terminals in Brooklyn and Queens, must come from revenues. In like manner the hundreds of millions required for development, for rehabilitation and for new lines in other cities and in the South, must come, in part at least, from revenues, i. e., from rates.

THE NEED FOR NATIONAL REGULATION.

To some the need for capital above referred to indicates the necessity for the government ownership of railways. If it is difficult to secure capital, government credit will help secure it at cheaper or at reasonable rates; if the taxing power is to be used for rehabilitation and improvements, then by all means let it be used directly by the National Government itself, say the advocates of immediate government ownership. "Let the Government buy now while it can buy cheapest," say the financiers among the government ownership advocates "National control under quasi-public auspices is fraught with difficulties, and in the end will prove abortive."

There is no use denying the fact that these are seductive arguments. But are we, as a people, sufficiently united upon the fundamentals of control under present conditions, to warrant us in purchasing and operating the railways? It is the thesis of this paper that we are not so united and that the development of regulation during the last thirty years, demonstrates this fact, and further, that regulation under National commission, properly developed to meet the needs of the people and the railways will properly safeguard the interests of the people for some time to come.

REGULATION BY COMMISSION VS. REGULATION BY COURTS

In the early eighties our people decided to regulate corporations, but they could not agree upon the methods by which it was to be accomplished. Economists like Henry C. Adams, Richard T. Ely, J. W. Jenks and Simon Sterne and other publicists and leaders who were familiar with European experience, favored the regulation of railroads by special commission which would have power to investigate and publish the facts concerning railroad corporations. Brilliant lawyers, publicists and leaders like Senator Hoar, Senator Edmunds and Senator Sherman urged control through court action, by the passage of an act expanding the old common law doctrine of conspiracy and by giving the Federal Courts power to punish as criminals those found guilty of conspiring to restrain trade. Those who favored the commission plan urged that the courts did not possess the administrative machinery which was needed for doing the work effectively, and that the judges were not in a position to keep in touch with business conditions so that they might act promptly or wisely.

The friends of the commission regulation plan succeeded in passing the act of 1887, creating the Interstate Commerce Commission, which was to have power to require and publish annual reports of railroad companies and to prevent discriminations in rates and charges. In 1890, those who believed in preventing trade abuses by means of prosecutions in the courts, secured the passage of the Sherman anti-trust act. Twenty-five years' experience with the Interstate Commerce Act and Commission and twenty-two years' experience with the Sherman law and its enforcement, have taught us that the Interstate Commerce Act and Commission are successful, while the Sherman law is practically a failure. No one can state that it has eradicated any abuses or promoted the general welfare.

Coupled with our States right doctrine, the Sherman law has served to keep alive a mass of useless and expensive machinery, such as the separate corporations which, added together, make up the great trunk line systems. These separate corporations are only a survival, and serve no adequate purpose and preserve no fundamental State or National interest. Their continued existence simply gives work to an army of clerks, bookkeepers and lawyers, the conductor, the train dispatcher and the passenger care not a fig for their existence.

In like manner, the Sherman law says to the railroads, "Compete with one another," and then levies fines upon them if they compete by offering additional service at the same rates, such as additional switching, special dispatch, special rebates, if all business is granted to a single company, and the like. In other words, the Sherman laws says "Compete" and then makes such competition very difficult. It is even made a crime to pool resources and facilities in order to render better or cheaper service.

Viewed in the large, the principal service of the Sherman law and States rights, as applied to railways, has been to sharpen the wits and to develop the ingenuity of the railway operators in providing methods of responding to the country's needs without stopping operation by running into the stone walls of legal enactment.

No one takes the position that the Sherman act is a useless statute, but the well-informed now agree that it should not have been used as a lever for forcing administrative burdens on the courts, but rather that it ought to have been used as a statute to which administrative commissions could appeal in case persons or corporations failed to obey the plain injunctions and regulations of the statutes or of the Commission.

The needs of the country demand new developments along administrative lines which will avoid the slow-moving and rigid formality of the law as much as possible. This development is possible under the Interstate Commerce Commission. Progress under the law and commission indicates the truth of this.

It was customary for some railroad presidents, notably the late David Wilcox, to assert in 1906 that no further powers should be given to the Interstate Commerce Commission because it had been a failure from the day it was created. Nothing could be further from the truth. The Commission was responsible for having standardized the books and accounts of the railroads to a remarkable extent. It built up a common classification of operating expenses and operating receipts which was pretty generally followed. It paved the way for a standard construction account and a standard balance sheet, and it standardized and universalized the terms—train mile, engine mile, ton mile and passenger mile. In short, whenever the Commission found a railroad had developed a good feature, it usually extended the information about that feature to all the railroads. This work was made possible because the Commission was able to enforce publicity through its power to require companies to make annual reports upon a blank form prescribed by the Commission. In order to make out the annual reports, the companies were forced to keep their accounts in much the same way.

The information about the railroad business acquired from an analysis of the annual reports and from special investigations formed a body of knowledge upon which the demand for amendments to the interstate commerce act was based, and served as a basis for drawing amendments to that law in 1906.

The amended interstate commerce act, known as the Hepburn law, authorized the Commission to prescribe uniform systems of accounts for railroads. When the railroads first heard of this requirement, some of them said it was preposterous and that their operations were so different that accounts could not be made uniform. They were not able to evade the law and after a careful study, even surprised themselves by finding that they were keeping uniform accounts. Never before had they realized what the requirements of the uniform annual reports had led them to accomplish.

If the Interstate Commerce Commission should order the railroads to introduce cost accounting in 1916, the railroads would be amazed, but they would find that the basis for such accounting has already been established. The system of uniform accounts so established will eventually eliminate all water from the asset accounts of the railroads, and will, in time, leave the books charged with the depreciated cost of physical property. That is to say, the past evils of over-capitalization will not only have been made impossible for the future, but those past mistakes will be rectified, and the water will be squeezed out of the railroads' asset accounts.

The next great administrative development, in my judgment, should be the elimination of the present artificial geographical grouping of railways, adopted some years ago and still followed by the Interstate Commerce Commission, and the substitution therefor of the territorial divisions which National traffic conditions have developed. Then the Commission should place an administrative representative in each of these "territories" as they are called, to whom railways and shippers could appeal with hope of quick decisions upon contested points without the two or three years' delay occasioned by appeals to the Interstate Commerce Commission in Washington. In this way the Interstate Commerce Commission, with its bench of black-robed puzzle-browed traffic judges, would function as a Court of Appeals all of the time in much better fashion than at present. Without doubt a multitude of purely administrative questions would be quickly settled in the administrative territories, and would never fall into the hands of the slow-moving Commission, with its necessarily slow-moving machinery. In that case, National regulation would present in less and less degree the aspect of locking the barn after the horse is stolen.

If the uniform accounts and practices are carried further, if the water in present construction accounts is gradually squeezed out as time goes on, if cost accounting is developed so that the cost of service can be more definitely ascertained, if useless laws be changed to conform to well-established commercial conditions, if the administrative agents above referred to be set up, if proper leeway be allowed the railroads to enable them to raise necessary capital, if the Interstate Commerce Commission places less emphasis upon the minutiae of control, and more upon the big questions of public policy, and if due consideration be given by the railways and the public to lessons taught by the New Haven financing, the public interests will be adequately protected without running the risks bound up with immediate National ownership and operation.

It is the thesis of this paper that all the machinery and development referred to above are necessary before government ownership and operation can be successful, and if we can secure this machinery and development with less strain, or with as little strain under quasi-public ownership and National control, then, by all means let us do so. Government ownership and operation along effective lines will not be delayed one whit, only injudicious and ill-thought-out government ownership and operation will be prevented.

By all means let us delay as long as possible the winding of our railways with governmental red tape and with the finely spun web of the civil service.

Conditions forced upon us by the war call for the exercise of initiative, for fluidity and flexibility of operation and management, not for governmental checks and balances with their heart-breaking reviews and delays which always place a premium upon "the good old methods." Successful National control and National charters should, in my judgment, precede National ownership and operation.

The Railroad and the Railroad Man*

By D. W. Cooke, Vice-President and General Traffic Manager, Erie Railroad Company.

IT may be said, primarily, that, by the investment of capital, a thing called a railroad has been created to transport people and property; a thing that must be accountable to its owners and to the authorized representatives of the people and property it transports.

The right of eminent domain, which is given it, is merely the application of the inexorable law of compensation "What will you have?" quoth God. "Take it and pay for it." This thing is not a person, an individual with personal rights, although it is human enough to wear the fine trappings of wealth, or the rags of poverty, as the case may be. It is a gigantic slave, that both pays and draws tribute; but for the most part it pays, and pays dearly. Its making, even in the earliest days, became too great for individual effort, so the corporation, the body without death carried out cumulative dreams of its builders.

The railroad, then, is a great machine, owned by thousands of partners, who are, in a large measure, unacquainted with their property, which is worked by you and me.

Broadly, the thing that concerns the world is not what the railroad is, but what it does; and, first, it transports passengers.

True, the greater aggregate revenue derived from freight traffic makes the railroad officer, in many cases, regard the freight traffic as of greater importance; but those who travel so greatly exceed in number those who ship that the chief function of the railroad in the public mind will be determined by the view of the majority who use it. It thus becomes personal and is infinitely closer to the individual who travels than when it has to do only with the shipment of his freight.

Think of what the railroad does in its passenger service. It carries the workman to his job, the clerk to his desk, the business man to his office, the banker to his bank, the commercial traveler to his customer, the bride and groom on their wedding journey, visitors to their friends, show companies to their engagements, immigrants to their homes in the new world, and transports parties of sad-eyed people, thinking only of the long box in the baggage car. It has made possible, in a large way, the personal intermingling of nations, and the country lawyer, riding a few miles to his county seat, sits side by side with the holder of a through ticket to the Orient. Gentile and Jew, Teuton, Slav and Briton, are gathered in the railroad's tireless car and transported as the errand or life's work calls him. In the mail car ahead, the letters that a few hours before were dropped in boxes by the writers, in blind confidence, are being carried unerringly to each address, no matter where it may be.

The crack express train, driven by the biggest and best thing in the shape of power, with mail, express, coaches, dining and sleeping cars, is not a mere blur on the landscape in the daylight, or a flash in the night. It stands for the railroad, the railroad that you and I work for, next to agriculture the biggest and most important thing in existence. It is exhibit "A" in the definition of the word "transportation," which gives us a living world instead of one that would otherwise be dead.

Exhibit "B" is the freight train. It typifies the part of the railroad in the world of barter; and so essential is that part that it is no exaggeration to say that the very lives of the inhabitants of all of our large cities are absolutely dependent upon it. A loaded freight car does not mean to you and me an ugly brown box, bearing a name and a number in large white letters. We know it contains something on which something else is dependent, and everything depends upon our transporting it. It may be flour for the starving people of Belgium, or it may be flint pebbles from Copenhagen for grinding cement at Chicago. It may be refined sugar for Cincinnati, or it may be salt for the Newfoundland fisheries. It may contain Pontianac gum from the Malay Peninsula, or agricultural implements for South America, for this is the world's commerce, and our part in it extends to the uttermost parts of the earth.

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*Address delivered before the Railroad Men's Improvement Society Semi-Monthly Meeting, held at the Meridian Club Headquarters, New York City, April 22, 1915.

Take a copy of the Official Classification and look it over. How many of us know of the origin of the great majority of the commodities there listed and their commercial uses? Our only hope is, when the time comes to move some of the things, we may have the opportunity to look them up, for, as a well-known firm of law book publishers states in its advertising, "It is not so much to know the law as to know where to find it."

Still, trade goes on, quite assuming that the railroad will be prepared to handle whatever is offered, and that the rate of transportation will be low.

In this somewhat general idealization of the railroad I have not, by any means, overlooked the element of Federal and State control, that has such an important part in the working of the property. These are mere influences indicating conditions, more or less burdensome, under which the work shall be done, and placing certain limitations upon, among other things, income. It will never be permitted to seriously interrupt the great scheme of transportation, which is to move persons and property, whether the railroads are owned by private capital or by the Government.

In the carrying out of work of the railroad, in the securing of its traffic, in the ceaseless toil of its operation, in the law, the accounting, the engineering and all of its various departments is found the heritage of the railroad man.

An inquisitive little Irish woman, the wife of a British army officer, once asked me what my business was. I told her I was a railroad man. She looked at me a moment with a puzzled expression, and said: "What is a railroad man?" I confess I was perplexed for a moment, for I suddenly seemed to feel a sense of unworthiness, but she seemed satisfied when I told her I was an officer of a railroad. Many a time since then I have said to myself, "What is a railroad man?" and my conclusion is that he is any man who works for a railroad, whether he be Mike Benedetto, of the section gang, or the person who has the word "President" printed below his signature. No one knows it all. No one can do it all. The giant is too big, to unwieldy for any human being to master single-handed. It can be done only by the fine cooperative effort of these thousands, each of whom tries to do his job well and is proud to call himself a railroad man. Again, the public view determines the name "Railroad Man" in its general application. Were you to ask nine people out of ten what such a man is like, the description would, doubtless, fit some conductor in brass buttons or an engineer in overalls. Faith is strong where the object is seen, and those devoted servants of the ticket punch and oil can represent the visible action of the railroad man to the majority of people. But, let us begin at the first impulse. The men who did the actual work of building the line may not have been railroad men. They were laborers, contractors and engineers, who, for the most part, left the job when it was completed. There was, doubtless, in the beginning a very limited general office staff, who started by getting together the necessary material to operate the line and prepare suitable freight and passenger tariffs through the medium of which the company's revenue might be measured. They also prepared a system of accounts and appointed a treasurer. These were the first railroad men and when the first passenger train was run a real railroad man lifted the ticket window and took in the first money—not as a tax upon the public but as a compensation for a service to be rendered. The report covering the sale of the ticket was devised by and checked by a real railroad man. The money collected was remitted to and disbursed by other railroad men. A box is brought to the station. A railroad man signs the bill of lading another makes the way-bill another loads it in the car. At destination another unloads it, another makes the expense bill collects the money and remits it. Then those indispensable railroad men at headquarters the patient painstaking, accurate fellows in the accounting office, carry the transaction to its conclusion. The great machine is in motion, a mammoth servant of mankind, ceasing to exist only when there are no longer any railroad men. Do I make myself plain? The railroad isn't anything but scrap without *us*. We are the brains of the thing, the blood in its veins, the power that enables it to run and distribute its millions. Do we like our job? Have we any occupation in the world where the men engaged in it, from president to laborer, are as devoted to their work as our fellow railroad men? All are overworked, *most* are underpaid, but the feeling of personal interest in "our line" carries everything before it and brings into railroad service a degree of devotion to the cause that is unparalleled.

Never was there a time when brains were more needed in railroad work than they are to-day. I do not mean super-brains, for they are scarce and not always successful—but *applied* brains, willing brains, to know your job, and as much as you can absorb of what goes on around you. Balzac says "Mediocrity wages incessant warfare against superior men," and success is bound to attend persistent and well-directed effort, regardless of the competition. You will recall in Lew Wallace's masterpiece how Ben Hur, pulling at his oar in the galleys, asked that he might be shifted occasionally to the other side, so that he would not become one-sided. Try, if your field will permit, to round yourself out, and don't shirk the job you don't like if the job must be done.

Opportunity is a great factor in the career of any man, but, instead of knocking on the door, opportunity will come right in if you have foresight enough to have the door open. Think of the changes a period of ten years makes in the men around you. Will your opportunity find you prepared?

And what is the opportunity you want? Not a soft job, surely, or you would not be here.

What you want is a chance to show what you can do, and having by hard work done it well, feel the satisfaction of the conqueror. Don't be discouraged if no one comes around with a laurel wreath to crown you for your achievement, but be well satisfied, if when some one at home who cares more than anyone else, asks how you came out, you can answer quietly, "I won it, dear."

Clean living, consideration for those around us, honesty and the canons of good taste, are fundamentals of character, and character I maintain, is nowhere better exemplified in any field of endeavor, than by our fellow worker—the Railroad Man.

Real Railroad Relief Requires Restoration of Rates[*]

By George G. Boardman.

THE real relief needed by the railroads of the United States to-day is, first, a restoration, or at least partial restoration, of their rates to those prevailing a few years ago, and second, to be let alone by the Federal and State Governments and not to be hampered by increased and unnecessary expenses caused by unwise legislation.

The expression "restoration" of rates rather than "increase" of rates has been intentionally used because the railroads have suffered for years from an almost continuous reduction in their rates, both for passengers and freight, and it will be shown here that if they were to be allowed a restoration of even one-half of such reduction, their present serious condition would be cured, which would result in a much needed stimulation to general business conditions all over the country such as nothing else could bring about.

In the compilation of the figures presented here much care has been used, and while they are necessarily approximate, the intention has been to understate rather than to overstate them. They cover the total railroad mileage of the United States, which on June 30, 1914, represented about 255,000 miles.

What the gradual reduction in rates referred to above has meant to the railroads may well be shown by the following:

About twenty-five years ago, or soon after the Interstate Commerce Commission was created, the railroads received an average of $2.35 for hauling a passenger 100 miles. This last year, over much more costly roadbed, in equipment far more expensive, and with superior service, they received $2.00 for the same haul. This reduction of 35 cents for carrying a passenger 100 miles may seem small to some, but when it is realized that on the passenger business of last year it represented a difference of $123,000,000 its importance to the railroads becomes evident.

During the earlier period the railroads received an average of $1.00 for hauling a ton of freight 100 miles. Last year, giving far better service, their average receipts were less than 73 cents for the same work. This reduction of 27 cents applied to last year's freight business meant a difference of $791,000,000. In other words, had the same passenger and freight rates prevailed the past year as were in force twenty-five years ago, the net earnings of the railroads would have been $914,000,000 more than they were. One half of this, brought about by a reasonable restoration of rates, would have enabled them not only to have paid all their interest charges and a fair return on their capital, but also to have made much needed additions and improvements, and to have carried many millions to their surplus accounts to provide for lean years. Moreover, their ability to do all these things out of their earnings would have immeasurably enhanced their credit so that there would have been no trouble in securing the funds needed for the construction of the 5,000 or 6,000 miles of new railroad which a fast-growing country like ours should build each year.

When we make a careful examination of the expense side of their accounts the first thing which naturally attracts our attention is the increased cost of maintenance of way and equipment, a large proportion of which is represented by labor. The following figures show the average cost of maintenance for each mile of road this last year in comparison with the year 1889:

	1914.	1889.	Inc.	Pct.
Maintenance of Way	$1,655	$945	$710	75%
Maintenance of Equipment ..	2,125	698	1,427	204%
Total Maintenance Mile..	$3,780	$1,643	$2,137	130%

The above figures disclose at least one fact, namely: that for every $100 paid for maintenance per mile of road in 1889, it cost the railroads $230 in 1914—an increase of 130 per cent, or much more than double the amount.

So much has been written regarding the increased cost of labor, materials, and fuel, that it seems futile to more than refer to the large increase in transportation expenses which are made up of those three items. The average increase in the cost of those items since the earlier period referred to is at least 40 per cent, and probably nearer 50 per cent. As to labor, few realize that it absorbs directly or indirectly sixty dollars out of every $100 earned, forty-five dollars being paid directly to labor and fifteen dollars, indirectly through such part of the cost of materials and fuel as is represented by labor. Rolling stock costs over 50 per cent more, after making due allowance for increased capacity and durability. Rails and ties cost over 40 per cent more per mile of road. In the meantime taxes have increased from $179 to $559 per mile, or 212 per cent.

The time has come for the thinking public—and Americans are intelligent thinkers—to pause and ponder over the railroad situation of the present, and to ask themselves if our transportation lines which make possible the commerce of our country should not be allowed a more nearly just return for their work; for an unbiased mind need make little more than a casual study of the real situation of the railroads to become convinced of their urgent need for better rates, and of the benefits which would result therefrom, not only to the roads themselves, but also to general business throughout the country.

Would not any business man be deeply concerned to discover that his expenses were increasing faster than his receipts? And yet that is the condition of the railroads to-day. Four years ago their net earnings were $838,000,000; this last year they were $718,000,000—a decrease of $120,000,000. During these four years one and one half billion dollars of fresh capital was put into the railroads in the construction of 14,000 miles of new roads and in additions and betterments to existing roads. To have earned five per cent on such new capital the net earnings should have been $75,000,000 more than they were in 1910, while as a matter of fact, as shown above, they were $120,000,000 less. Even during the past year, and in the face of an increase of over 4,000 miles of operated road, their gross earnings were $75,000,000 less than the year before, while their expenses and taxes were $49,000,000 more—the net earnings being $124,000,000 less. Let any busniess man ask himself what sort of a business proposition this is; what incentive there is for a man to invest any part of his capital in a business which, with increased capital put into it, shows a decrease in return. Such conditions ought not to be allowed to continue. The remedy lies with our Federal and State Governments and it cannot be too quickly applied. Railroads have only one thing to sell—transportation. They are not permitted to say what they shall sell it for. They have many things to buy, such as engines, cars, rails, ties, labor, material, fuel, and other supplies for all of which they are forced to pay much more than formerly.

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[*] From the Frisco Man.

Some of the largest shippers in the United States the men out of whose pockets would come any restoration of freight rates which may be allowed, have begun to realize the necessity for higher rates and have openly expressed themselves in favor of a substantial increase, for the reason that in their judgment it would not only benefit the railroads but would result in material benefit to their own business and to all business.

Two or three years ago the head of one of the biggest shipping houses in the country, whose freight bills are among the heaviest of any shippers, openly stated that the solution of the railroad rate matter was of the utmost importance to the general prosperity of the country, and that he believed it would be to the advantage of the average merchant to pay some increase in freight rates. He took as an example a retail business with gross receipts of $1,000,000 a year, located west of the Mississippi, and which paid about $25,000 a year on freight from the East, and stated that if the freight rates were to be raised 12 per cent such business would pay $3,000 additional each year to the railroads. He then said, "Let any merchant look back carefully over his records and note the fat years and the lean years and then mark the years of general railroad extension and improvement on the one hand, and the years of railroad retrenchment on the other, and I am sure he will find that his prosperity on the average has increased with the progress of the railroads and has waned with their lack of progress." His conclusion was that if the retail business referred to were to pay the $3,000 additional in freight rates his investigation had led him to believe that the general activity which renewed buying by the railroads would induce would increase that retail business at least five per cent, and perhaps as much as 10 per cent or 15 per cent, and that at a minimum increase of five per cent such concern would get additional sales amounting to $50,000, at slight additional expense, excepting for freight, and that it would be entirely safe to say that its net profit on such sales, before deducting the increased payment to the railroads, would be at least $6,000, or twice as much as it would have to pay by reason of such increased rates.

The vice-president of one of the largest manufacturing concerns in the world, whose works are in St. Louis, and whose freight shipments are enormous, has for several years been a strong advocate for a reasonable advance in railroad rates, and believes that if it were granted there would be a large increase in business, in which his company would share, and that the recollections resulting from such increase in business would remain long after the amount of the increased rates was forgotten.

Although the need for a partial restoration of rates is apparent as to almost every railroad in the country, it is most urgent to the roads west of the Mississippi which run through sparsely settled territory and haven't the advantage of the dense traffic, both in freight and passengers, which is a help to the Eastern roads.

The railroads' condition to-day may be compared with that of a man laid up sick in bed and unable to move to help himself, although he has obeyed instructions and done what he could to recover his health. Doctors and nurses are standing around saying that there isn't anything they can do for him. The railroads are in a similar state, for they are unquestionably in a weakened condition from the medicine which they have been forced to take; they need a different prescription; one which has at least an element of encouragement in it; and even if they get such encouragement through partially restored rates, there is bound to be a period of convalescence before they are able to get on their feet again and properly handle the increased business which is sure to come to them within the next few months.

Restoring Shattered Confidence---A Lesson of the War

By John H. Fahey, President of the Chamber of Commerce of the United States.

SHOCKED as almost never before in our history by the terrific impact of an unexpected war, the country's business was almost prostrated less than six months ago. The unsettling character of this disturbance you well know; and yet within this short period the recovery from it has been little short of marvelous. Able and patriotic business men, and resourceful organizations of business men, did their full share, working shoulder to shoulder with the responsible heads of the Government in repairing the broken down machinery and in restoring shattered confidence.

That this great historical happening will have far-reaching results cannot be denied. What the ultimate effect will be depends largely on us as a people, on the wisdom of our statesmen and the courage and leadership of our business men. Perhaps this catastrophe has brought us to a keener realization of our common interest than ever before. The farmer and the worker have come to see their dependence on the transportation agencies and the business men and likewise there has developed an equally better understanding on our own part of our relation to these other great interests.

It seems clear that we are going further out into the world than ever before; that America and things American will be better known in lands where we have been almost strangers. In this evolution let us see to it that our America carries the impression we would like to have it convey, that it stands for liberty and justice and honest dealing. On no other basis can our influence be long sustained.

In the countries across the Atlantic now rent by strife, but a few months ago things of serious portent were developing. Violent social racial and religious prejudices were aroused over projected reforms in nearly all of them. Even civil war threatened. But when the cataclysm came dissensions were forgotten over night. Rich and poor, high and low, came together in each nation in the common cause.

The example is sharply before us. Do we need any greater crisis than that through which we have passed so recently to make clear to all of us the necessity of real national co-operation and understanding? It is quite as patriotic, it is quite as much our duty, that in the blessedness of peace we should forget prejudices and partisanships and undertake to work together efficiently and persistently, supporting with all our energy that which makes for the greatness of the Republic and of its people.

As we go forward in this effort we will surely find that so far as business is concerned, unity of action and efficient organization will prove a great instrument for helpfulness and service. It is with this sense of service that we should support it and work for it,—for better business and a grander Republic.

Canal Competition: Its Actual Meaning

Note.—The public knows in a general way that the Panama Canal is offering severe and growing competition to the railroads for the transportation of freight between points on and near the east and west coasts of the United States. But it knows little of the actual extent of this competition, of its inclusion of traffic between interior points, of the definite effect on rates and on business. In the following article, taken from "Financial America," care has been taken to give specific illustrations so that the reader may be in a position to judge of the competition between the railroads and the canal on a basis of fact.

SINCE the opening of the Panama Canal for traffic, the transportation of freight has been developed so successfully that its short period of operation is nearly forgotten. It is, of course, the natural route for coast-to-coast traffic—business originating at interior points for coast-port destinations, and coast-port shipments to interior destinations.

Between interior points of shipment and interior destinations the canal lines have been limited to traffic which could bear the arbitrary rates between each port and the interior points. Trade quickly adopts a natural course, and conditions are soon adjusted accordingly, but it is surprising how rapidly and completely our domestic trade has sought the canal and the feeling of satisfaction of the shippers and receivers in matters of rates and service.

The canal lines at this end make no effort in solicitation, and very little solicitation is necessary on the Pacific Coast, but all necessary attention is given to the handling of the traffic, while the rail carriers are compelled to make continuous solicitation at both ends. One canal line dispatches a steamer every week each way and while ships were formerly loaded with from 9,000 to 10,000 tons, they have recently been compelled to reduce the tonnage somewhat on account of safety to the canal by way of a lighter draught. Prior to this and at present, this line has to leave from 400 to 500 tons on the dock from each steamer.

Endowed with the tonnage that was originally carried in direct steamers "around the Horn," and traffic that stood trans-shipping across the Isthmus of Panama and by the Tehuantepec routs, at 35 days' service, the Panama Canal lines turned their efforts towards securing high-class traffic on the basis of through shipment and faster time. They then became recognized competitors of the rail carriers. Shipping merchandise "less carloads" between New York and San Francisco by rail necessitates at least one transfer, and from 12 to 15 days' service, which is not always regular, while by the canal there is no transfer and service has been given ranging from 16 days to 22 days.

Carload lots, all rail, is usually accorded through service, and the time is from 12 to 15 days, the same conditions prevailing as on "less carload" merchandise. Canal service, on the other hand, is regular and extends to all classes of freight, while the rail carriers do not accord 12 to 15-day service on commodities that bear low rates. For instance, on rail shipments of slate, 20 days from quarries to Pacific coast points is considered good time, but 25 days is nearer the rule, as they do not handle these heavy loads of low-class freight on fast merchandise trains.

This discrimination cannot happen on the canal, as the low-class, heavy freight is the first in the holds.

Up to May 1st there were three large steamship companies operating regular schedules with about 35 steamers, comprising the American-Hawaiian Steamship Company, the Atlantic & Pacific Steamship Co. (W. R. Grace & Co.'s line) and the Luckenbach Steamship Co. Since then the International Mercantile Marine Co. has entered two Red Star Line ships, the Finland and Kroonland, in the canal service. These steamers also carry passengers to the Panama Exposition, but it is quite likely that the company will remain permanently in the canal trade.

There have been a number of steamer cargoes of lumber and wheat from the Pacific coast by various steamers chartered specially. The regular steamship lines have taken from the rail carriers almost the entire eastbound movement of canned goods, dried fruit, wine, etc., and the railroads' principal losses on westbound traffic have been pipe, wire, steel, cement, metals, drugs, chemicals, dry goods, pianos and general merchandise.

During the periods when the water lines operated via the Isthmus of Panama and the Tehuantepec route at services ranging from 35 to 40 days, they made rates of 45c. to 55c. per 100 lbs. on canned goods, and 65c. per 100 lbs. on dried fruit, against a rail rate of 85c. per 100 lbs. on canned goods and $1.10 per 100 lbs. on dried fruit. When they put the canal schedules in effect, reducing their previous time by one-half, comparing favorably with rail service, they also reduced the canned goods rate to 30c. to 35c. and dried fruit 40c. to 45c. per cwt. (out of which is paid 6c. per 100 lbs. canal toll). These goods are sold f. o. b. steamer, Pacific Coast. On wine, the railroads quote 75c. per 100 lbs., and the canal lines have made the rate 40c. per cwt. The shipping public has been greatly benefited and naturally is strong in its praise for the canal achievements, as it is possible to ship dried fruit and canned goods back West as far as St. Paul and Minneapolis, including such large cities as Chicago, Milwaukee, Cincinnati, Cleveland, Detroit, Pittsburgh, etc., at a material saving under the all-rail rate.

This situation, too, makes it unattractive to any prospective .smaller competition in canal transportation.

As to westbound conditions it is to be noted that the canal lines have carried steel, pipe and wire at 30c. to 35c. per 100 lbs. as against the rail rates of 80c., 65c. and $1.00, and 90c. respectively. It is understood that early cargo shipments of cement were moved as low as 25c. per 100 lbs. Metals are moved from Illinois producing points via New York to San Francisco and short-haul interior.

Three of the largest piano jobbers in the United States are located at San Francisco, with branches at Los Angeles, Portland and Seattle, and purchase their entire stock in New York, where more pianos of all qualities are manufactured than any other place. This trade is using the Panama Canal at a rate of $1.00 per 100 lbs. any quantity as against a rail rate of $3.70 per 100 lbs. "less carloads," and $2.00 per 100 lbs. carloads, and the rail carriers have lost a substantial movement they had enjoyed for years.

The heaviest loss to the railroads westbound has been sustained in dry goods and cotton goods moving from New England, New York City, State mills, Pennsylvania and the South. All the Pacific Coast jobbers and many large department stores are shipping by the canal, and strongly endorse the service. They receive long datings on their bills and the mills prefer to deliver as soon as goods are finished, so the canal meets fully their requirements and thus the overland shipments are few and small.

The rate on cotton goods "less carloads" all-rail, is $1.88 per 100 lbs. and the canal $1.00. Local rates to New York from New England, New York State and Pennsylvania mill points are from 21 to 30c. per 100 lbs., and from southern mill points 53c. per 100 lbs. The southern mills equalize the former mills' freight rates, and the canal rate averages about $1.25, as against rates of $1.88 on cotton goods and $1.73 on ducks, sheetings, etc., saving 50c. to 60c. per 100 lbs. or $3 and more a case. One large jobber. who for years has shipped overland 30 carloads as well as an immense "less carload" traffic each season, shipped but two cars all-rail, and these cars were knit goods manufactured in Wisconsin and Illinois.

That the canal is the master of the situation on overland traffic, and that the railroads sometimes act paradoxically, may be seen regarding shipments of drugs. The rail rate was $2 per 100 lbs. and the canal rate $1. The railroads were carrying a substantial portion of this traffic when for some unknown reason they raised this rate to $3.70 during a general advance a short time ago. The rail carriers lost the entire traffic and the canal lines have since raised their rates to $1.50 per cwt.

The rail carriers which bear the entire loss of traffic moving by canal are the intermediate roads operating between Chicago and St. Louis to Minneapolis transfer, Missouri River points, Colorado and Texas gateways and also the Gulf steamer routes in conjunction with rail. The Eastern trunk lines, Central freight lines and Southern roads have not been so greatly affected as they receive local rates to New York City on canal business, which is some reparation and should materially offset the loss sustained by the decreased overland movement.

The transcontinental roads receive local rates between San Francisco, Los Angeles (San Pedro), Portland, Seattle and interior points on canal movements but this reparation falls far short of the loss of traffic. As the interior territory will be stimulated and developed in the course of time the loss may finally be adjusted.

It may be generally stated that the canal lines' field of operations extend to the following territories: New England States, points east of Niagara frontier (Buffalo), and Ohio River (Pittsburgh), and the southeastern states, viz., the Virginias, North and South Carolina, Georgia and Tennessee. On the Pacific side, shipping extends to and from points as far East as Spokane, Salt Lake and intermountain territory.

The railroads at present are adjusting their rates to preserve their interior territory, and are endeavoring to recover some of the traffic lost to coast and nearby points. The latter does not seem possible as the canal will always be an equalizer of rates, the coast and nearby territory virtually belonging to the canal lines, while they can invade the railroads' interior territory materially with one added "arbitrary," i. e., one rate up to or from port, but where the canal is limited or precluded is on movements from interior points to interior points, bearing heavy arbitrary rates to and from each port.

When business becomes normal and peace is restored, the canal lines will still extend their field of traffic. There will be more steamers in the service, and new lines. A large steamship company formed in Boston and the Arrow Line of San Francisco both contemplated entering the canal trade, but definite action was deferred until conditions in general improved. Then, complete refrigeration will be installed, and deciduous fruits and California vegetables will be carried.

Oregon and Washington apples were carried in large quantities during the past season with success, only one small lot arriving in poor condition by a line that was not equipped or experienced in handling apples. Citrus fruits, too, may be shipped by the canal, but as these are not handled on commission but sold by distributors through auctions it would mean new provisions in sale arrangements.

The Curve Line of Horse Sense*

By F. A. PARKER, CHIEF DISPATCHER, CHICAGO, ROCK ISLAND AND PACIFIC RAILWAY, DES MOINES, IOWA.

OUR learned and talented friends of the engineering departments draw out some beautiful theorems and write many an interesting article in the technical journals, and give many an inspiring talk in their association meetings. One of the lamentable features of their work is that it does not reach the real man who acts, or is not put up in such shape that it will appeal to him unless you run him down and force him to take it.

It is with this in view that an attempt will here be made to bring before train dispatchers some figures and facts which are of vital importance to their usefulness—you are therefore begged to subject your minds to a little mental calculation in a simple form of what some apparently slight fluctuations in results amount to in dollars and cents by the month, or by the day.

Let us take a hypothetical 300 mile division, ruling grade one per cent, on which 100,000,000 gross tons are moved one mile per month, the freight train mileage 100,000, the tractive power for through freight service 57,000 draw-bar pull, for which the rating at different speeds varies from 2,080 tons for 10 miles per hour to 1,180 tons for 25 miles per hour over the ruling grade's rating for intermediate speeds inversely proportionate, or briefly, the rating of the engine becoming 60 tons less for every mile increase over 10 miles per hour in speeds over ruling grades.

Divide the gross by the train mileage and find 1,000 tons per train as the average train haul. Divide the gross by 300 miles times 30 days, and we have 11,111 tons one mile per mile of road per day. Divide the 100,000 train miles by 300 times 30 days and you have 11.1 train miles per mile of road per day.

We now reach a point where many of us can see their own job, or something they have worked on at some time, which is about five and one half freight trains each way per day as an average for the year around, or about 11,111 tons in and out of the terminal, all freight trains considered.

Estimating our freight train mileage bill as sixty cents per train mile (which is a proper choice for the conditions considered) the train dispatcher's office is evidently an important department in the disbursement of $0.60 times 100,000 (train miles), or $60,000 per month, $2,000 per day.

In the matter of car service, which we will assume is very rightly charged up to you on both system and foreign cars at the rate of 45 cents per day, and assuming that your division has moved these cars on an average of 25 miles per day for the past year, it is found that your division has also been charged up with an average of 4,000 cars on hand each day, and has made 3,000,000 car miles per month. 4,000 cars on hand per day on a 300 mile division may look a little high to some of you, but when you reflect that you have moved your cars on an average of only 25 miles per day, handled 100,000,000 gross tons per month, averaged 1,000 tons per train, which is about 33 (plus) cars per train, you certainly had a plenty of cars lying around stations and in yards awaiting movement, otherwise you would have made better car mileage per day to have handled 100,000,000 gross. Accepting 4,000 cars per day as correct, your per diem bill was $0.45 times 4,000 or $1,800 per day—$54,000 per month.

The figures of 25 miles per day on cars may appear to be an extremely low mark, but it is not so far from the statistical average for the United States, and in this case is picked out with premeditation pertinent to the subject under discussion. We all, of course, know of divisions which average 50 or 75 miles per day on cars, by virtue of the fact that such division either enjoys a through business, or is not charged with the operation of any large terminals, possibly both. It's the sick man who needs the doctor, so we choose a 25-mile per day man's railroad to triangulate on with a view of pointing out in dollars and cents what low car mileage results in.

Again referring to our 100,000 train miles, and assuming that we run a local and a little better each way per day—in fact, make 633 local miles per day—we then find we have made 81,000 chain gang miles per month, 2,700 chain gang miles per day, and that our engines available for service have made 100 miles per day. It is evident that we required 27 available engines for the service. 27 engines of the class that handle only their share of the average of 1,000 tons per train will probably cost $25,000 each; $675,000 for the 27—the interest of which at six per cent is $40,500 per year, $3,375 per month, and for each engine is $125 per month, or $4.17 per day—depreciation neglected.

Summarizing the foregoing monetary values you are parties to, with the exception, of course, of the value of the cars, partially covered by the 45-cent per day charge; we have:

Train mileage	$60,000.00
Per diem	54,000.00
Interest on engines	3,375.00
A total of, per month	$117,375.00

$3,912 per day, and it certainly looks like a field on which a saving can be accomplished.

In looking over a bunch of operating reports such as the railroads are required by law to file each month with the Interstate Commerce Commission, and finding those of a similar case to the figures herein quoted, fluctuations would be noted such as an average of 1,000 tons per train for the entire year, but on some months only 900 tons per train, while on others 1,100 or more per train; then in the matter of car miles per day, some months only 20 miles per day being made, while on others as high as 30 miles per day. The months when 1,100 tons per train were handled may have reflected a decrease in car miles per day, and controversely on months of high car mileage per day, a low tonnage per train as a result. Let us see what an increase to 1,100 tons per train, and a decrease to 20 miles per day would amount to in dollars and cents:

Dividing 100,000,000 gross tons one mile by

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*Delivered at Annual Meeting of Train Dispatchers' Association, Minneapolis, June 15, 16, 17, 1915.

1,100 tons per train, we get 90,909 train miles, a decrease of 9,091 miles per month, which at 60 cents per train mile is $5,454.60 per month, $181.82 per day.

Dividing 3,000,000 car miles per month by 30 days times 20 miles per day, indicates that we have increased the daily number of cars on the division to 5,000, or 1,000 cars over our average, and thus increased our per diem bill $450 per day, or $13,000 per month; and if it were a fact that the increase in train haul had delayed the movement of power to such an extent that about two and one half times the amount saved in train mileage had been lost in the movement of cars, we would at once conclude that fast movement was preferable to heavy trains.

If, however, at an increase in tonnage per train to 1,100 tons, which, by the way, is only the addition of about three loads to each train, and at the same time increased car mileage per day to 30 miles, you have then decreased the number of cars on your division to 3,333 by the process of 3,000,000 car miles divided by the product of 30 times 30, and this decrease of 667 cars at 45 cents per day is $300 per day, or $9,000 per month, and the sum of the train mileage and per diem saved is about $14,454 per month, $418 per day.

Since our schedules in most cases contemplate 10 miles per hour as the basis of a day's pay, it is naturally a common belief that during certain dull seasons of the year, when power and cars are abundant, that loading trains down to 10 miles per hour is the proper way to get best returns on the money expended for train and engine service. This is no doubt true, but when cars become more in demand, and the demand for power rises in direct proportion thereto, the next thing is to figure out and maintain the most economical train haul, to make the most car miles, or ton miles, which ever you wish to call it, per hour, rather than the greatest tonnage per train. In this connection I would call your attention to a repeated unchallenged statement on the part of car service men that the speed of cars in trains is a negligible factor in the car mileage per day, while the following arguments are incidentally offered as a contradiction of such a statement:

The builders of the engines you use issued a bulletin at the time of completing their machine, showing its rating over various grades at various speeds, usually from 10 to 30 miles per hour, and it strikes us at once without looking at such a table that what tonnage the engine can handle at 10 miles per hour is much greater than what can be handled at 15 miles per hour, and that the rating the engine can handle at 15 miles per hour is greater than what can be handled at 20 miles per hour, and so on.

For the purpose of argument here we will take the type of engine mentioned in the introduction of the case to be discussed, and tabulate as follows the rating for the engine at various speeds and what it will accomplish in ton miles per hour, on the plan of ton mileage per hour equals speed per hour times the engine rating for that speed per hour:

Speed per Hour.	Engine Rating.	Ton Mileage per Hour.
10	2,080	20,800
11	2,020	22,200
12	1,960	23,500
13	1,900	24,700
14	1,840	25,800
15	1,780	26,700
16	1,720	27,600
17	1,660	28,300
18	1,600	28,900
19	1,540	29,300
20	1,480	29,600
21	1,420	29,800
22	1,360	29,900*
23	1,300	29,900*
24	1,240	29,800
25	1,180	29,600
26	1,138	29,300
27	1,076	29,100
28	1,024	28,600
29	972	28,200

* Theoretical point of highest efficiency.

This example, or tabulation rather, is entirely theoretical, for it presupposes a condition which never obtains, viz, a one per cent grade over the entire division, no delays of any description—but is useful to illustrate a fundamental principle In actual practice it is found that this most economical speed of trains to secure the greatest efficiency in car mileage is between 16 and 19 miles per hour, varying according to conditions of single or double track, number of meeting and passing points, etc. To secure such efficiency you must figure out from daily observation or experience a rating for your power which they can get over the road with at somewhere between 16 and 19 miles per hour—say if it is a 100-mile division, make it in about six or seven hours instead of ten hours. It should not be inferred that this happy result will obtain from making a low rating to make up for bad meeting points or unfavorable times for using power, for many times you might better let the mechanical department work on an engine a couple or three hours longer, than to take it and start it out at an unfavorable time just because they want to get on record as turning it out. You might better have the work done in the hope that you will get this engine just that much quicker at the other end of the line. It should on the same principle be borne in mind that many times an engine going toward a terminal will not be used any quicker after a six-hour trip than after a ten-hour trip, in which case more tonnage is desirable.

From this argument it is quite clear that in raising the speed of your trains from 10 to 16 or 17 miles per hour, you have increased car or ton mileage per hour 10 or 12 per cent, which can be shown by another long and tiresome discussion of figures as netting monetary returns which more than offset the increased cost of train mileage.

Another important point to be considered is the increased efficiency of your power at a speed of 16 or 17 miles per hour over the division instead of 10. It would be possible in such an event for your engines instead of making 100 miles per day to 123 miles per day, in which case 22 engines instead of 27 would handle your 2,700 chain gang miles per day with the same satisfaction that 27 did at the slower speed, and you have then released $125,000 worth of power, the interest on which alone is nearly $21 per day, not to mention the value of that power to some other division which at that time may be losing business and paying claims for the want of power.

The civil and mechanical engineers lay down to you as train dispatchers tables and curve lines of grades, power and tonnage ratings, theoreticaly correct, but entirly void of the multifarious elements which enter into daily operation—hence it becomes your duty as train dispatchers to draw the "curve line of horse-sense" for each individual case—the co-ordination of the theoretical and the practical. Regardless of the lines laid down by the engineer, you must draw the line that fits the case. This field is too broad to attempt to do it justice on paper, nor should it be necessary to the practical mind which is placed in the position of train dispatcher. Simply this, gentlemen, you must know the theoretical side of the game, but always keep the practical as the first consideration, and follow it, and then you will be giving your superintendent, trainmaster or chief the very best operation the conditions will admit.

We see a great many articles purporting to give advice on co-operation between the yardmaster, roundhouse foreman and the train dispatcher, all of which from my personal observation is lost advice, because it is not getting down to the roots of what is sought. To my way of thinking, the position of train dispatcher is really that of a master railroader, and to be a master railroader the candidate must learn something besides what he learned around the telegraph office before he was promoted, and assumed was sufficient to carry him through to the general manager's chair. Some of the prime things he should know by heart are the nine or ten labor contracts which he is at all times more or less in contact with in order to handle the various things which will come up under these contracts with entire fairness to the men, and at the same time protect the company's interest in securing no less than what these contracts call for again, he should know all about the car service and per diem rules, also the M. C. B. rules, all of which are found up to date in the Monthly Official Register.

Having mastered these, he should spend as much time in the yard with the switchmen as possible until he has thoroughly masterd their work and in doing this he has mastered the fundamental problems which confront the yardmaster, and is of course in a position to lend the yardmaster most sympathetic and helpful assistance at all times while on duty. After having mastered this, he should spend a certain amount of his time at the roundhouse, where an ever-ready foreman, traveling engineer, or possibly the master mechanic is always willing to teach a train dispatcher things which in turn benefit them both, as the train dispatcher is then in a position to better understand what is wanted in the roundhouse in the line of co-operation Another important thing is the getting out over the road on freight at as frequent intervals as possible. This serves three purposes—it refreshes your memory on the physical conditions of the road, gets you in closer touch with the men, and most important of all improves your health, which is naturally impaired by the close confinement of the office. We hear someone say: "The company should give us a couple of days per month on pay to go over the road." So they had, and probably would if it was forced upon the proper authorities' attention that good would really result therefrom. You could possibly help this along yourselves by a united effort to raise that train haul and at the same time raise their car mileage per day in the thousands of ways which close touch with the situation enables you, and then make an argument with what you had done as a basis for such a concession.

Gentlemen, it is possible for you in a concerted effort to produce a net saving that would outdistance anything that could be made or done by any of the other departments.

New Regulations to Meet Cummins Amendment

NOTE: In order to meet the Cummins amendment to the act to regulate commerce, which went into effect on June 2d, the carriers have announced a number of changes made in their bill of lading and otherwise. The following paragraphs are taken from a statement covering these changes, recently issued by the Traffic Bureau of the Merchants' Association of New York.

THE Cummins amendment to the act to regulate commerce went into effect on June 2, 1915. Under this amendment a carrier is prohibited from limiting its liability for loss, damage or injury to property transported by it.

Carriers are not prohibited from making different rates according to the value of different grades of a given commodity; and when the goods are hidden from view by wrapping, boxing or other means, they may require the shipper to state specifically in writing the value of the goods and they are not to be liable beyond the amount so stated.

If the rate is lawfully conditioned upon value as declared by the shipper, it is the shipper's duty to declare the true value of the shipment. If the shipper declares the value to be less than the true value in order to get a lower rate than that to which he would otherwise be entitled, he violates the law and is subject to the penalty provided.

FREIGHT SHIPMENTS.

The carriers by freight have announced the following changes in the uniform bill of lading in use in Official and Western Classification territory:

"Section 3 of the conditions contained in the Uniform Bill of Lading is amended so as to read as follows:

"'Section 3. No carrier is bound to transport said property by any particular train or vessel, or in time for any particular market, or otherwise than with reasonable despatch, unless by specific agreement endorsed hereon. Every carrier shall have the right in case of physical necessity to forward said property by any railroad or route between the point of shipment and the point of destination; but if such diversion shall be from a rail to a water route the liability of the carrier shall be the same as though the entire carriage were by rail.'

"'The amount of any loss or damage for which any carrier is liable shall be computed on the basis of the value of the property at the place and time of shipment under this bill of lading.'

"'Except in cases where the loss, damage, or injury complained of is due to delay or damage while being loaded or unloaded, or damaged in transit by carelessness or negligence, claims must be made in writing to the carrier at the point of delivery or at the point of origin within four months after delivery of the property, or, in case of failure to make delivery, then within four months after a reasonable time for delivery has elapsed. Suits for recovery of claims for loss or damage, notice of which is not required, and which are not made in writing to the carrier within four months as above specified, shall be instituted only within two years after delivery of the property, or in case of failure to make delivery, then within two years after a reasonable time for delivery has elapsed. No claims not in suit will be paid after the lapse of two years as above, unless made in writing to the carrier within four months as above specified.'

"'Any carrier or party liable on account of loss of or damage to any of said property shall have the full benefit of any insurance that may have been effected upon or on account of said property so far as this shall not avoid the policies or contracts of insurance.'"

As it was impractical for carriers and shippers to print new forms containing the revised section 3, provision has been made for the use of the present forms by the endorsement of the following clause, either by rubber stamp or in writing, across Section 3 of the old form:

Where Official Classification applies:

"Section 3 is amended by Supplement No. 18 to Official Classification No. 42 effective June 2, 1915, and reissues thereof."

Where Western Classification applies:

"Section 3 is amended by Supplement No. 6 to Western Classification No. 53 effective June 2, 1915, and reissues thereof."

The carriers by freight subject to the Southern Classification, where the Standard Bill of Lading is in use have made the following announcement:

"All rates governed by this Classification (Southern) apply only on property shipped subject to the conditions of the carriers' Bill of Lading in use on and after June 3, 1915, and, except as otherwise provided herein, all interstate rates in force June 2, 1915, will continue in force on and after June 3, 1915, disregarding provisions in Tariffs, Classification and Exception sheets which limit the liability of carriers."

In continuing the use of the standard form, the following clause should be endorsed, either by rubber stamp or in writing, across the face of the bill of lading:

"The terms and conditions of this bill with respect to interstate shipments are subject to the provisions of the 'Act to Regulate Commerce' and the amendments thereto including the so-called 'Cummins Amendment' and are effective only so far as not inconsistent with such provisions."

EXPRESS SHIPMENTS.

For compliance with the Cummins amendment the Commission has prescribed the following form of Uniform Express Receipt:

UNIFORM EXPRESS RECEIPT.

.... EXPRESS COMPANY.

Non-negotiable Receipt.

........................191....

Received from .... subject to the classifications and tariffs in effect on the date hereof ....
....
............................value herein stated and warranted by shipper to be ....
(See footnote)
.... dollars, Consigned to ....
...................., at
Charges ....
which the Company agrees to carry upon the terms and conditions printed on the back hereof, to which the shipper agrees, and as evidence thereof, accepts and signs this receipt.

....
Shipper.

....
.For the Company.

NOTE.—The Company's charge is based upon the character of the property, of which its value is an element, and its value must be declared in writing by the shipper unless its character is otherwise disclosed. When goods are hidden from view by wrapping, boxing or other means and the company is not notified of the character thereof, the shipper's declaration of value may be made by notation "not exceeding $50.00" or "not exceeding $50.00 or 50 cents per pound, actual weight."

Section 2 of the "terms and conditions" of the express receipt is changed to read as follows:

"Section 2. The rate charged for carrying said property is dependent upon the actual value of the property which must be specifically stated in writing by the shipper, and applies only upon property of an actual value not exceeding fifty dollars for any shipment of one hundred pounds or less, or not exceeding fifty cents per pound, actual weight, for any shipment in excess of one hundred pounds. If the actual value is greater than fifty dollars for any shipment of one hundred pounds or less, or exceeds fifty cents per pound, actual weight, for any shipment in excess of one hundred pounds, such actual value must be specifically stated in writing by the shipper, and excess charges for such greater value must be paid therefor in accordance with the lawfully-published tariffs of the company."

BAGGAGE TRANSPORTATION.

Transportation of baggage is subject to the act. Under the old rule, unless a greater sum was declared by the passenger and charges paid for increased valuation at time of delivery to carrier, the value of baggage, up to and including the allowance of 150 pounds for an adult passenger, was agreed to be not more than $100, and the value of baggage of a weight exceeding 150 pounds was agreed to be not more than 66 2-3 cents per pound.

When the passenger declared a value greater than $100 for 150 pounds or, in case of excess weight, a value greater than 66 2-3 cents per pound, an additional charge at the rate of ten cents for each $100 or fraction thereof was provided.

Under the new regulation, the baggage allowance of 150 pounds is based upon a value of not exceeding $100 for each adult passenger, and for excess weight the baggage will be entitled to an additional value allowance of 66 2-3 cents for each pound of excess weight on which charges are paid. The regulation also provides that the shipper of baggage must, at the time of delivery to the carrier, declare in writing the value thereof on a form prescribed by the checking carrier. If the shipper declines to state the value of the baggage on the form prescribed, it will not be accepted in baggage service. When the shipper declares a greater value than $100 for the 150 pounds allowance, or than 66 2-3 cents per pound for each pound of excess weight, there will be an additional charge at the rate of ten cents for each $100 or fraction thereof above such maximum values. When excess value is declared on baggage consisting of more than one piece, the value must be placed and charges collected on each piece of the baggage.

The difficulty of declaring the value of baggage at the time of checking, and the great annoyance that will be visited upon the traveling public under the regulations growing out of the Cummins amendment must be recognized by all concerned. It does not now appear that the unexpected developments in connection with this legislation can be remedied except by Congress or by assumption on the part of the carriers of full liability, regardless of value, for loss, damage or delay due to their negligence.

The Work of the Committee on Railway Legislation

THE special committee on Relation of Railway Operation to Legislation, has recently issued a report covering its operations from November 1, 1914, to April 30, 1915, which shows that its expenses during that period amounted to approximately $11,500. At the present time, 240 railways, representing 22,107 miles of line, are supporting the work of the committee. The subcommittees at the present time are composed of the following railway officials:

OFFICERS OF THE MECHANICAL DEPARTMENTS.

C. E. Fuller, S. M. P. & M., Union Pacific Railroad (Chairman).

A. W. Gibbs, Ch. Mech. Engr., Pennsylvania Railroad.

R. E. Smith, G. S. M. P., Atlantic Coast Line.

D. R. MacBain, S. M. P., New York Central Railroad.

F. H. Clark, G. S. M. P., Baltimore and Ohio Railroad.

ENGINEERING OFFICERS.

C. A. Morse, Ch. Engr., Rock Island Lines (Chairman).

G. W. Kittredge, Ch. Engr., New York Central Railroad.

W. L. Darling, Ch. Engr., Northern Pacific Railway.

A .S. Baldwin, Ch. Engr., Illinois Central Railroad.

SIGNAL OFFICERS.

J. A. Peabody, Signal Engr., Chicago and North Western Railway (Chairman).

W. J. Eck, Sig. and El. Eng., Southern Railway.

A. H. Rudd, Signal Engr., Pennsylvania Railroad.

J. C. Mock, Signal Engr., Michigan Central Railroad.

As to the work accomplished since the publication of the last report, the following statement is submitted:

INSPECTION OF LOCOMOTIVES.

Since the last report, a bill was passed by Congress and approved by the President, extending the provisions of the locomotive boiler inspection act to all parts of the locomotive and tender. Full information with respect to this was given in Bulletin No. 65, March 10, 1915.

The extent to which this legislation will affect the design, construction and maintenance of locomotives cannot be clearly stated at this time. It is probable, however, that among its other effects will be ultimately to make inoperative all State legislation dealing with the specific equipment of locomotives, including headlights.

In view of the doubt surrounding the effect of the act and the very grave importance of a correct phrasing and understanding of the rules which must be formulated under it, your committee has canvassed the railways to ascertain whether it was desired that the necessary negotiations be undertaken by the roads in concert rather than individually. (See Circular No. 69, March 10, 1915.)

As the result of this canvass, roads operating upwards of 170,000 miles have authorized this committee to represent them in such negotiations

These negotiations will be conducted by the sub-committee of officers of the mechanical departments above referred to, which sub-committee has associated with itself, in order to secure a wide representation from all parts of the country, the following:

H. T. Bentley, S. M. P. & M., Chicago and North Western Railway.

F. F. Gaines, S. M. P., Central of Georgia.

John Purcell, Asst. to V.-P., Atchison, Topeka and Santa Fe Railway.

W. H. V. Rosing, Spec. Engr., St. Louis and San Francisco Railway.

C. B. Young, Mech. Engr, Chicago, Burlington and Quincy Railroad.

A. de Sola Mendes, V.-P., Birmingham and Southeastern Railway, representing the Short Lines.

(See Bulletin No. 66, May 3, 1915.)

As it is probable that a number of legal questions will present themselves during the progress of these negotiations, your committee will arrange to secure advice of counsel, through the law committee of the Railway Executives Advisory Committee on Federal Relations, of which Mr. Frank Trumbull is chairman.

No other bill relating to railway operation was passed during the Congress which adjourned on March 4, 1915.

CLEARANCES.

It is not improbable that when the next Congress meets an effort will be made to secure legislation specifying standard horizontal and vertical clearances. Doubtless such legislation will leave to the discretion of the Interstate Commerce Commission the extent to which variations from the standards so set may be permitted.

While owing to the great variation in States having such requirements such legislation may have certain advantages, it is clear that the form which any proposed bill may take will have to be most carefully considered and steps must be taken to present the views of the railways in such a manner as to convince Congress of their reasonableness.

In view of the fact that there is not a standard clearance for new construction recommended either by the American Railway Engineering Association or the American Railway Association, the sub-committee of engineering officers will take this matter vigorously in hand with the proper committee of the American Railway Engineering Association and it is hoped that the latter committee will be able to submit a report by the first of December in order that we may have the benefit of the suggestions and recommendations of that committee, even though they cannot be passed upon by either the American Railway Engineering Association or the American Railway Association before May of next year.

In the opinion of your committee this procedure is urgently necessary.

UNITED STATES SAFETY APPLIANCES

The period within which cars in existence on July 1, 1911, must be brought into conformity with the United States safety appliance standards expires on July 1, 1916. In response to Circular No. 68, January 15, 1915, a large majority of the roads operating a great part of the mileage and a very large proportion of the cars, expressed the opinion that a further etxension of time should be sought.

Your committee is now canvassing the railways (see Circular No. 70) to ascertain whether it is their desire that this be undertaken by this committee. If so authorized, your committee will undertake them and the negotiations will be handled by the sub-committee of officers of the mechanical departments.

It is apparent from the reports received that upwards of 900,000 freight cars still remain to be properly equipped.

STATIONARY BOILERS.

In the last report reference was made to a proposed form of specification and code for the inspection of stationary boilers promulgated by the American Society of Mechanical Engineers. Conferences held on this subject have resulted in some modification of the code as originally proposed, and as finally approved by the American Society of Mechanical Engineers there appears to be nothing which will seriously compromise the interests of the railways.

STEEL PASSENGER EQUIPMENT

On May 10, 1915, Bulletin No. 67 was issued bringing the information as to the progress of the construction of steel and steel underframe cars up to January 1, 1915. The number of steel and steel underframe passenger cars constructed in the United States in the calendar year 1914 was 4,295, bringing the total number of these cars in existence to approximately 18,600. These latter figures compare with 1,302 such cars in service January 1, 1909.

Inasmuch as the construction of wooden cars for passenger service has practically been discontinued, it appears that no necessity exists for legislation on this subject from any point of view.

PRIVATE CAR INVESTIGATION.

As you were notified in Report No. 13, the presentation of the railways' case before the Interstate Commerce Commission was concluded in June, 1914. The Commission has not yet issued any report on the subject. Your committee has been reimbursed for all expenditures made on account of this investigation except to the amount of $24.95.

STATE LEGISLATION.

Since the first of January, 1915, legislatures in 43 States have been in session. Of these, 31 have adjourned.

Up to May 1, 1915, there had been introduced 1,005 bills relating to railway operation. Fifty-one related to the number of men to be employed in train or switching crews, none of which have been passed.

Ninety-four bills have been enacted into laws, most of which deal with relatively unimportant features of railway operation.

The usual bulletin will be issued on the adjournment of the legislatures, giving full information as to the character of the bills introduced and passed.

STATE COMMITTEES

These committees were organized in twenty States and the work accomplished by them was of the most efficient character. The results obtained by this method of procedure have fully justified the confidence heretofore expressed in this method of presenting the railways' interests before State and National legislatures.

The American Commerce Association

Note.—This new Department of the "Railway World" is devoted to the interests of the American Commerce Association, the national organization of traffic men, for traffic men, by traffic men. The object of the organization is to set standards of efficiency for employers and employes, as it is believed that the present tremendous waste of time and money in traffic work, demands employment of trained men. The "Railway World" is in entire sympathy with this movement, and it believes it will not only develop more harmonious relations between those who employ and those who operate the railways, but will serve to more fully inform the business men of the country regarding rate matters and thus enable them to more intelligently and economically employ our transportation agencies. This new department in the "Railway World," will discuss matters pertaining to traffic efficiency and the Traffic Efficiency Clubs of the Association, located in the various cities of the country. Under this heading practical railroad and industrial traffic matters will also be discussed.

The Experience Method in Traffic Training.

Experience is probably the best teacher. The school of "hard knocks" is thorough, and it has produced some of the world's greatest men. Nearly every practical fact or fundamental principle, now known, was discovered by someone through actual experience.

A man of many years' service in traffic work, not long ago, made the statement: "I have accumulated all the necessary information in traffic work by actual experience.

"I learned classification and billing of freight, while I was employed for several years by the Northern Railroad in the local freight house. I learned claim work with the Western Railroad, during my five years in their Claim Department.

"I learned rate making during the six years I was connected with the Traffic Bureau of the Southeastern Line. Interstate Commerce Law and procedure was mastered when I was connected with the Legal Department of the Eastern Railroad.

"I learned the Industrial Traffic Management work when employed for eight years with the Smith Company, and I have thoroughly mastered the adjustment of rates while with the State Railway and Interstate Commerce Commissions, during the last six years. I have been in the business forty-three years and know every angle of the work."

After going over some of the current traffic problems of the day, we must confess that our friend, of many frosts, had more than an average knowledge, but he knew nothing of course, of matters outside of his experience.

He gained his information by learning one fact one day, another fact next week, a new principle the next month, and another the next year. Ninety-eight per cent of all the work he did was routine, and only about two per cent was new information. He had spent thirty-two years in getting the information, which could have been acquired by the systematic and scientific study of experience, of traffic experts, in a fraction of the time.

How old are you was asked?

"Sixty one," replied the traffic man.

How many more years of service do you think you have to sell at a good salary at your age?

"Well I never thought of that, seriously. I understand some employers do not want a man over fifty."

Are you familiar with all of the various angles of the Interstate Commerce Law and the Rulings of the Interstate Commerce Commission? Do you understand the principles involved in the rate adjustment cases? How to determine the daily changes in tariffs and how to apply legal rates under the Government Freight Rate System?

"No; but I could get all that quickly enough if necessary. I gained my knowledge by actual experience. I have tested out what I have learned in my daily work and I know that I am right."

But the rates which are considered just and equitable in one section of the country, might not be reasonable in another. An article classified as first class in Trunk Line Territory, may be carried at a loss in the Trans-Missouri River Territory.

"Yes, that may be true, but I won't cross any bridges until I come to them."

Don't you think that you would be better able to judge the reasonableness of rates in the rate structures, if you knew all of the principles which had been approved by the Interstate Commerce Commission in various rate adjustment cases?

"Yes; I expect that's true."

You stated that you learned the basis of rates with the State Railway and Interstate Commerce Commission. Will you mention one important thing you learned in that position?

"Yes; I learned that the rates from Central Freight Association Territory to Trunk Line Territory are based upon percentages of the Chicago-New York rate; that the territory is divided into rate groups; that the rates from all towns in each group take a fixed percentage of the standard New York-Chicago rates."

Didn't you ever meet this information before in your experience?

"No; that's the first time I ever learned the fundamental principles governing that rate structure."

Do you think you could prepare a written statement pointing out to a friend just how the rates are constructed between Central Freight Association Territory and Trunk Line Territory?

"Yes; that would be a very easy matter."

How long do you think it would require the recipient of the letter to understand the facts?

"Well, he should fully understand the matter after studying over the statement for about fifteen minutes."

Are you sure that this man could learn this rate basis in fifteen minutes if you clearly wrote out all the facts?

"Certainly, the facts are easy to master, when once you find them and he could learn them in fifteen minutes."

How long were you in the traffic business before you discovered these facts by experience?

"Well, about forty years."

Then, you could point out to a man in fifteen minutes by putting experience on paper or traffic brains in print, what it required you forty years to learn by experience alone.

"Yes; I guess that's so; I never thought of it that way before. There was no chance for me to learn it in any other way, and I had to wait for the information until I stumbled on to it. No matter how many mistakes I made for lack of the information, I never had time to find out what the other men were doing. Those about me did not have time to tell me about things which did not pertain to my work. My work was always such a small part of all of the work of the system, that it brought me in touch with only a very small part of all the information, therefore, it took me years to get the little I know about the traffic business.

"If men who have specialized in the various parts of the work, would take the time to write out plainly all the important facts, regarding Interstate Commerce, Railway Traffic and Traffic Management work, then if a Board of Experts should take all of this information and systematically arrange it, building the information up as a bricklayer builds a wall, one fact upon another, showing the natural development of the information, so that when one begins to read this practical information, it would unfold like unrolling a ball of twine, every fact explaining the next one, don't you think you could get all of this information in a fraction of the time that it required you to secure it by experience?"

"There is no doubt about it. I realize that I have wasted the best part of my life in securing the information which could be obtained by systematic and scientific study in a fraction of the time. I have mastered only a part of the information and I have wasted most of my life. I have only a few years' service left to sell, whereas, if I could have secured this information in a year or so, when I first started, I could have easily qualified myself to work up rapidly in the many positions which I could have secured had I only been qualified."

Essentials of the Experienced Method of Training.

In learning to do a thing by experience, there are three factors which enter into your work: (1) You are given the necessary information; (2) You are required to apply that information which results in experience; and (3) Someone checks you up to see if you have accurately done the work, until you reach maximum efficiency.

Efficiency in any line of work means accomplishing the task in the quickest time, with the least effort, and expense and with the greatest degree of profit to your employer. This means, that you must know just what to do and how to do it, in one best way.

You know, of course, that every action of the body must originate in the mind. Bodily activity, or the accomplishment of any piece of work, is nothing more than the expression of ideas.

You may give a group of untrained men all the necessary tools, building material and time to build a bridge, yet they could not do it unless they possessed the necessary information on construction. A cobbler is not an efficient operator.

The Experience Method of Training means nothing more or less than the scientific and systematic study of the experience of men who are specialists in a given line of work, recording that tested information and applying it in actual work. It is not a study of theoretical books or a long discussion "about it" but a treatise on "just how to do it." You may read in books all about the various things you should know, in order to make a shipment so that it will take a legal rate, but it is quite a different matter to do this work, and get the required results.

You may have the best set of tools which money can buy and know every principle of mechanics, yet it would be impossible for you to construct a building. **Knowledge without application is practically worthless.** Most correspondence schools fail because they do not make the student apply his information.

In our work of training men for practical traffic work we follow the procedure of actual experience in traffic offices in learning the business. First the chief clerk or head of the department gives the necessary technical information or directions. Following this the man is directed to apply the information, by doing a certain kind of work. This is actual experience. Then the chief clerk inspects the work or checks it up to see that it is done accurately in accordance with the technical information presented.

Learning traffic work in this manner, is learning by directed experience. This is the very same method which we have adopted for training men for traffic work, because it is the only way by which anyone can practically learn how to do traffic work in the quickest time, with the least effort, and with the greatest degree of permanency and practical application. The heart of our training therefore is actual experience in traffic work.

The computation of the legal freight charges on a shipment of extension tables for example is strictly a mental operation and depends upon technical knowledge. It can be done just as well in your home, on the street corner or in the traffic office. No matter where you do it, only that you apply the necessary technical facts.

Suppose you were to make such a shipment from New York City to Denver, how would you do it? In the first place you must know how the rate is made. In your study of the jurisdiction of tariffs you will find that the tariff of the carrier originating the business, publishes the rate up to the Mississippi River Crossings or Chicago and that the rate from the Mississippi River Crossings or Chicago to Denver, is published in tariff No. 11, of the Trans-Missouri Freight Committee. W. A. Poteet, Chairman, Kansas City, Missouri.

This latter tariff is governed by the Western Classification, whereas, the tariff applying from New York to the river or Chicago, is governed by the Official Classification. You will find by referring to the Western Classification that there is no specific rating on extension tables and from your knowledge of the classification, you will find that they must be rated third class under the item furniture, N. O. I. B. N.

By referring to the Official Classification you will find that extension tables are not classified and should be shipped under the description of tables N. O. I. B. N., and if K. D., take the second class rating. Under the Western Classification extension tables are classified as third class if K. D. As the class rating is lower in the Western than in the Official it is to your interest to make a longer haul under the Western Classification. By basing the rate on Chicago you can procure a lower class rating, therefore, than by making combination on the Mississippi River Crossings.

From this instance you can easily see that the computation of freight charges is not necessarily a matter of experience but a matter of technical knowledge. It would take anyone a thousand years to acquire all of the technical facts by experience alone.

Residence Instruction Impractical.

It is impractical to learn traffic work by residence instruction. In the first place the members of a class of adults are of different ages, different experiences, different education, and different ability and not qualified to absorb the necessary technical information together. Therefore, if they should start out together it would be impossible for the class to make progress together.

Class work requiring some of the members to go more rapidly than they can understand the work, and other members much slower than necessary, resulting in a loss of interest and time.

It must be apparent that individual instruction, adjusting the training to the individual experience, capabilities and time of the students is the only practical way in which a man can thoroughly learn traffic work, in the quickest time, with the least effort and expense.

It also should be understood that it would be absolutely impossible to get the necessary traffic experts in the country together in one place for the purpose of carrying on any systematic course, of resident instruction. Traffic experts receive a very large income for their services and it would be necessary to pay these men such large salaries, that it would make such a course of resident instruction prohibitive, costing perhaps not less than a $1000 a year. Moreover, if these men should absent themselves from daily traffic work, they would not be able to give the required information, and would in a short time become theorical.

Theoretical Practical Traffic Work.

There are new conditions and principles constantly coming up in the traffic world to meet industrial, railroad and commercial conditions, **and only those who are actually in the "game" are in a position to practically train men for the important positions in the traffic world.**

The very same men who are handling our Traffic Training Service on our Consulting Staff are now acting as traffic managers and experts for various business concerns and railroads, throughout the country and are giving forth the very same information as they are using daily in handling their actual traffic affairs.

As we are constantly dealing with all kinds of traffic problems and are in touch with every important change in rates, regulations or law which governs Interstate Commerce or Railway Traffic, we are therefore in a position to give this very same information in the form of actual traffic problems qualifying you to successfully handle a traffic department.

Experience of Traffic Experts.

There are acres of books on Transportation. Practically none of them are of any value in the computation of transportation costs, or in the dispatch of shipments.

There is not a book in the Congressional Library of Washington or in the twenty million dollar library of New York City, or in the great libraries of our leading Universities or colleges, that will give the necessary information for determining the freight charges on various shipments, between points in this country or to foreign ports.

The hundreds of thousands of railroad tariffs, which are constructed in accordance with the requirements of the Interstate Commerce Commission contain the necessary information, for the computation of freight charges. These tariffs are constantly being changed. Investigation by the Interstate Commerce Commission, showed that in ten days between October 20th and October 30th, there were 15,000 advances and 25,000 reductions, in the rates in these tariffs or an average of 4440 changes in rates every twenty-four hours.

Without knowing the principles of tariff construction, the application and jurisdiction of tariffs, the interpretation of the rulings of the Interstate Commerce Commission and the requirements of the Interstate Commerce Law and the Law of Common Carriers, it is absolutely impossible to determine accurately transportation costs.

The Brains of Men not Books Contain the Required Information.

The required traffic information is known only to the men who are specialists in their various lines. A man who has had years of experience in the computation of Trunk Line rates may be an authority on the rates in that section of the country. The chances are that he knows very little about rates in the Southwestern Territory, or about export and import rates.

The man, who by experience, is an expert in connection with some of the various freight services, as milling-in-transit demurrage, or refrigeration, may know practically nothing about the Application of Tariffs or rates on packing house products or other commodities outside his line of work.

The man of years of experience, who has mastered the rulings of the Interstate Commerce Commission and the construction of tariffs, and who understands thoroughly the basing point system, the rate group system and the distance mileage scale, will probably know very little about the economic organization and management of a traffic department; efficiency methods in handling records, and other matters which must be known to the traffic director of big affairs.

In order to train men thoroughly to successfully handle all of the various questions and problems which confront the traffic manager in modern traffic work, it has been necessary to pool the experiences of experts, who are specialists in their various lines.

The Systematic Study of Experience—Not Books.

A little reflection will show that the scientific study of experience is the only possible way in which any one can thoroughly master traffic work. No man's experience, no matter how wide, is sufficient to give him a thorough understanding of all of the factors in transportation work. It is necessary for every man to make a systematic and scientific study of the experience of others.

In order to do this it has been necessary for the American Commerce Association to place **Practical Experience** or "Traffic Brains in Print." Or in other words get men who are specialists in their lines to write out in detail, their daily experience, the very facts which they use in doing their work. This information has been supplemented by the experience of other men, in similar lines of work, until finally every important fact in connection with that particular line of work, has been compiled and presented in such a manner, that it may be assimilated in the quickest time, with the least effort, with the greatest degree of permanency and practical application.

Establishing a Traffic Efficiency Standard.

The required standard of traffic efficiency has been established by the American Commerce Association, the national traffic efficiency organization of traffic men with headquarters at Chicago. This standard is set out in Traffic Efficiency Docket No. 20, a book of 220 pages which gives an outline of the boiled down practical experience and knowledge of hundreds of traffic experts, gained through long years of service in connection with all the various angles of the traffic business.

It is the first and only scientific exposition of the organized knowledge of traffic work ever produced. It indicates the standard of efficiency which the Advisory Traffic Council of the American Commerce Association, a committee of about two hundred prominent traffic men, have established. This Docket has been revised over and over twenty times with a view of including all the required information now possessed by traffic experts to-day, also such information as is indispensable for successfully filling the higher executive traffic positions. It will be rewritten many more times, because this docket will be constantly revised to cover all the most practical, authentic, up-to-date, traffic information available from all sources.

British Railway Developments

(From Our London Correspondent.)

Railways and the War.

It is general knowledge that the British railway companies have during the war passed practically under the direction of the State. Upon the outbreak of hostilities it was at once realized that the country must command the services of the great railroads, and that no selfish or civilian interest must be allowed to interpose itself. Accordingly an advisory committee was formed, representative of the most important railway undertakings, and probably it will never be known how great was the self-denial exercised in arriving at a ground of common action. The imperative claims of the military and naval authorities were placed in the forefront of the new administrative policy. Consequently, the State obtained, and has exercised, the right to supersede all other services, in favor of its own troop, ammunition or food trains. Such trains may be worked into any railway time-table, at the shortest possible notice. Everything has to give way. Passengers may be inconvenienced by the sudden withdrawal of trains, or traders handicapped by the wholesale stoppage of goods traffic. Both have to put up with such hardships. The Government may go to the length of commandeering a whole system for hours, days, or even a week. The power to do so has been used; it may possibly be brought into force to even a greater extent than heretofore. The company suffers loss of revenue; that is inevitable. How then are the shareholders safeguarded?

The plan has been to pool all railway receipts in order to determine an average. A comparison is then made between the earnings of the last half of 1914 with those of 1913, and whatever deficit may be in the treasury makes it good, in return for the services which the companies have rendered to the State, without book entries or making of actual charges. In this way, one company, more severely penalized than another, has its burden shared by its more fortunate competitors. But even this plan of equalization would have partly failed in its object had not the first half of 1914 been extraordinarily prosperous. The earnings of the first six months have, to a great extent, compensated for the shortcomings of the autumn, due to the war.

But what of the future? Certain conditions prevail which are, in a measure, temporary. Three great factors are still operative. First of all, the companies have had to carry out Government requisitions—some lines more than others, and congestion has resulted. Congestion on two lines in particular, due to military requirements, has, so to speak, slowed down the whole traffic of the country—the London and South-Western and the Great Western. Congestion on other lines, which is gradually disappearing, has been due to the second of the factors mentioned, viz., the necessity of transporting by land what formerly went by sea. This particularly applies to the coal trade from the Midlands and Yorkshire. Then, too, this traffic, together with the normal demands upon the carrying power of the country, has had to be handled by staff largely depleted by drafts into the Army. And, lastly, for a cause which cannot here be more definitely stated, many centers are at the present time crowded with rolling stock, ready to meet the instant demand of the authorities should emergencies occur.

Dear Coal and Clear Railways.

In British railway circles the suggestion by coal merchants that the increased cost of fuel is mainly brought about by the congestion of traffic upon the railways is strongly criticised. That there has been congestion of traffic is not denied; in fact, it is the inevitable result of the necessity for giving precedence to Government traffic. The main point to remember, however, is that although some extra time may be occupied in transit, railway rates have not been advanced, and, therefore, the increase in the price of coal cannot be attributed to the railways. Moreover, for the railways it has to be said that they have taken prompt measures to expedite transit, and the general situation now shows improvement.

It may be recalled that immediately the congestion became acute, the Railway Executive Committee gave notice that coal and coke consignments would not be accepted unless the wagons were labeled through from the collieries to their final destinations. Under the "wait-order" system wagons containing coal could be consigned to various depots to wait orders, upon receipt of which the railway company relabeled and forwarded them to destination. Instances could be quoted in which wagons have been in railway depots for several weeks awaiting orders, a fact which shows that there is no substantial ground for contending that delays now occurring on the railways have any material bearing on retail prices.

As to the suggestion that railway wagons should be "pooled," this, it is understood, has formed the subject of discussion on more than one occasion, but the feeling of competent railway officials is that to attempt any such arrangement now would probably result in adding to, rather than relieving, the congestion.

Every effort is being made to improve matters, and new rules have just been put into operation for regulating the conveyance of naval and military traffic. Under Government control this has precedence of all other. But there have been instances in which unnecessarily prompt attention has been given to relatively unimportant consignments. In future Government traffic will be classified, and while all naval and military traffic will continue to take precedence over civil traffic so far as acceptance is concerned, it will otherwise be dealt with according to its relative importance. "Very urgent naval or military stores" will be conveyed under special conditions, while "urgent naval or military stores" will take precedence over ordinary naval or military stores; general stores or traffic from one firm to another for naval or military contracts which it is desired should be given priority over civil traffic will be a separate class.

A feature of the scheme is that firms of contractors will be required to hand railway companies a certificate that the traffic is urgent. This document will be issued by authorized persons and will hold good for a limited period only, thereby preventing its indiscriminate use. The general result should be to expedite and regularize the conveyance of Government traffic, and assist in preventing congestion.

Employment of Women on Railways.

THE question of the employment of women on British railways to admit of the release of men for military service is one that is engaging close attention at the present time. Under normal circumstances women would be regarded as unsuitable for most railway duties, but the question arises at the present time as to the extent to which they may be employed in the positions of men desirous of serving with the colors. For a considerable time past female clerks have been met with in most general offices, but hitherto the work in booking offices has been outside their sphere of activity, although in other countries this has been regarded as an occupation for which women are eminently suitable.

With the depletion of the ranks brought about by men joining the colors and the desire of others to follow their example, the question of staff has reached an acute stage, and, in common with others, the railways of the country have had to turn their attention to the avenues in which women can be employed, with the result that they have now made their appearance in booking and parcels offices as halt and dining car attendants, and ticket collectors and examiners. That there is a desire on the part of the women of the country to do all in their power to release men for military service is evident from the numbers who are availing themselves of the special register of women for war service, set up by the Board of Trade, and in this respect the following letter from the first woman ticket collector employed on the Great Western Railway is of interest: "Sir.—If you would care to engage me as a ticket collector here, or at any of the smaller stations on the line, and so release a man for more important work I should be very willing to undertake the duty. I have earned my own living for ten years, but am now 'unemployed' owing to the war. It struck me that a woman could be a 'ticket collector' just as well as a man. (Signed) Vera George."

Women Railway Porters.

The experiment of replacing male porters who have joined the colors by women is meeting with considerable success on the Great Central Railway. Women have been doing carriage cleaning on this line for some time, "and doing it very well," said an official who was not anxious to make comparisons with the men. It was from these cleaners that the women porters were chosen. They work on the platforms only as the authorities do not wish them to run the same risk as the men.

There has been some criticism but mostly of a good-humored nature, and the women have slipped into their work so well that passengers are beginning to take them for granted. One of the most astonished arrivals on Good Friday morning was a young officer with a heavy kit-bag and a quantity of other luggage who found himself relieved of it by an Amazon with a badge on her arm, who put him, luggage and all, in a taxicab before he had time to realize where he was, and, in just as businesslike a way, pocketed his tip.

Before the war there were about 50 or 60 women in the Great Central Railway Company's service. Now there are about 400. These include ticket sorters, typists, shorthand writers, telegraphists, and telephone operators. Recently they have

Women Ticket Collectors at Paddington Station, London. They Appeared for the First Time on Monday, April 12th.

been taken into the general manager's office for secretarial work.

"Women have their limitations, but there is plenty of scope for them," was the opinion of a high official of this railway, who added that 4,000 men from the Great Central had joined the Army, 200 of whom had already appeared in the casualty lists. There are as yet no women railway porters at any of the other great termini, though it is said that a step in this direction is contemplated at several of them.

New Locomotives and Rolling Stock.

The locomotive superintendent of the North British Railway Company has favored me with two photographs of his company's newest locomotives. One is a main line bogie passenger superheater and the other is the new 19½-inch cylinder engine. The former of these has cylinders 20 inches by 26 inches and wheels 6 feet 6 inches and 3 feet 6 inches. The heating surface is 1,640.7 square feet and the grate area 21.13 square feet. The working pressure is 170 pounds and the tank capacity 4,235 gallons. The total weight of locomotive in running condition is 233,996 pounds. With regard to the goods engine, the cylinders are 19½ inches by 26 inches; wheels 5 feet 6 coupled; heating surface 1,732.22 square feet; grate area 19.8 square feet; working pressure 165 pounds, capacity of tank 3,500 gallons; and weight in running condition 209,552 pounds approximately. At the same time I also add two diagrams of a nine-compartment third-class semi-corridor carriage.

Mr. Robinson's latest effort in tank locomotives for the Great Central is a most powerful looking engine, and is intended for heavy goods and mineral traffic. But, as is the case with many of these large tank engines in various parts of the country, it is so equipped as to be also available for heavy passenger duty. It has 1,543 square feet of evaporative surface, and is fitted with a Robinson superheater of twenty-four elements, supplying a surface of 304 square feet. The firebox is of the Belpaire type with a grate area of 26 square feet. Two large inside cylinders, of 21 inches diameter and 26 inches stroke, are provided with 10-inch piston valves placed on top, with inside admission. The Stephenson gear is employed, operating through a rocking shaft. The coupled wheels are 5 feet 1 inch in diameter and all others 3 feet. Of the total weight of 215,936 pounds, 61 per cent is available for adhesion. The tanks have a capacity of 3,000 gallons and water is picked up on the journey, duplicate scoops being provided, arranged for forward and backward running respectively.

One of the Great Eastern six-coupled standard goods and mineral engines has been fitted with the Weir loocmotive feed pump and heater, which will give us yet another interesting experiment to watch. The engine will certainly excite a great deal of attention on the Great Eastern system by reason of the weird appearance of the various fittings. It is not a handsome addition.

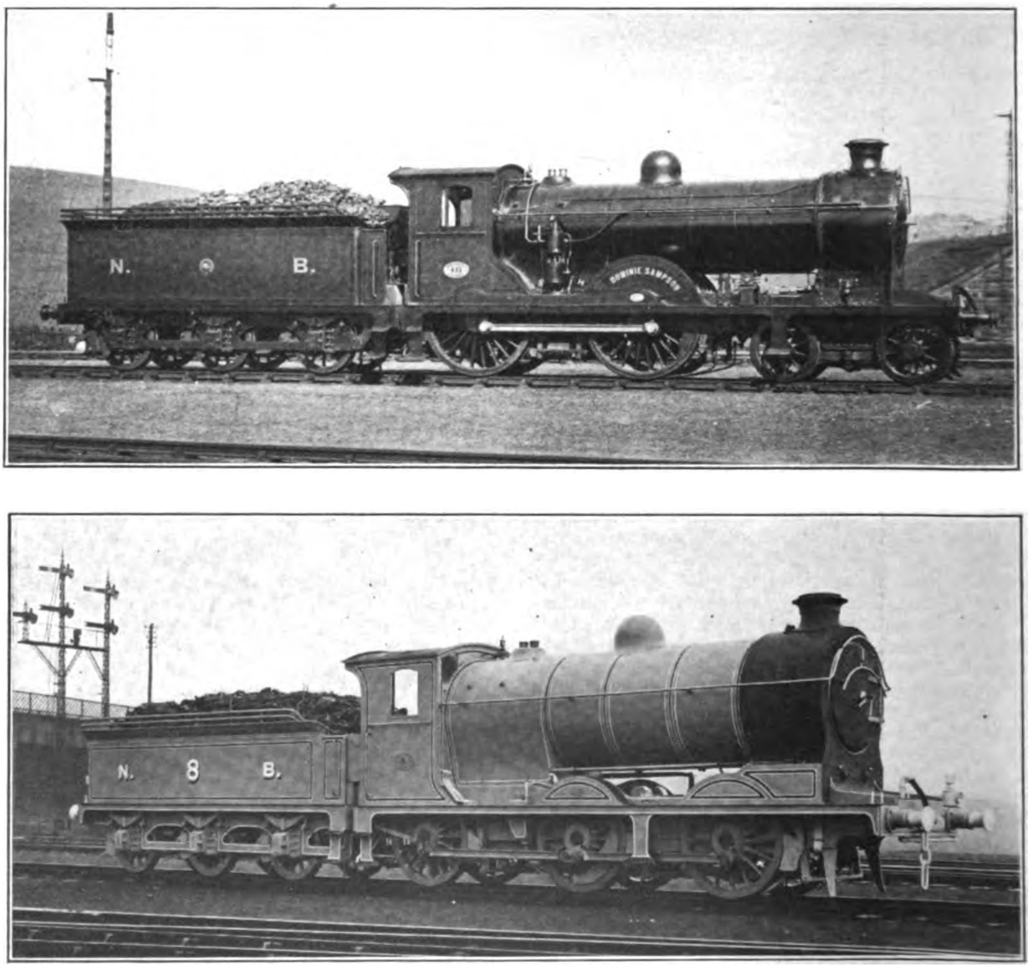
An example of conversion of some note is supplied by the work Mr. Urie has lately put into a London and South Western locomotive, one of the earlier four-cylinder 4-6-0 express engines built by Dugald Drummond. The four 16½ by 26 cylinders are now replaced by two of 21 inches diameter and 28 inches stroke. A superheated boiler takes the place of the original well-known Drummond form. The cylinders have been brought forward, the valve gear inverted, and the framing altered out of recognition. As rebuilt, the engine certainly presents an appearance of largely increased power, and it is understood that it will take up a share of the heaviest passenger and goods traffic alike in common with Mr. Urie's own 486 class.

A Big French Electric Locomotive.

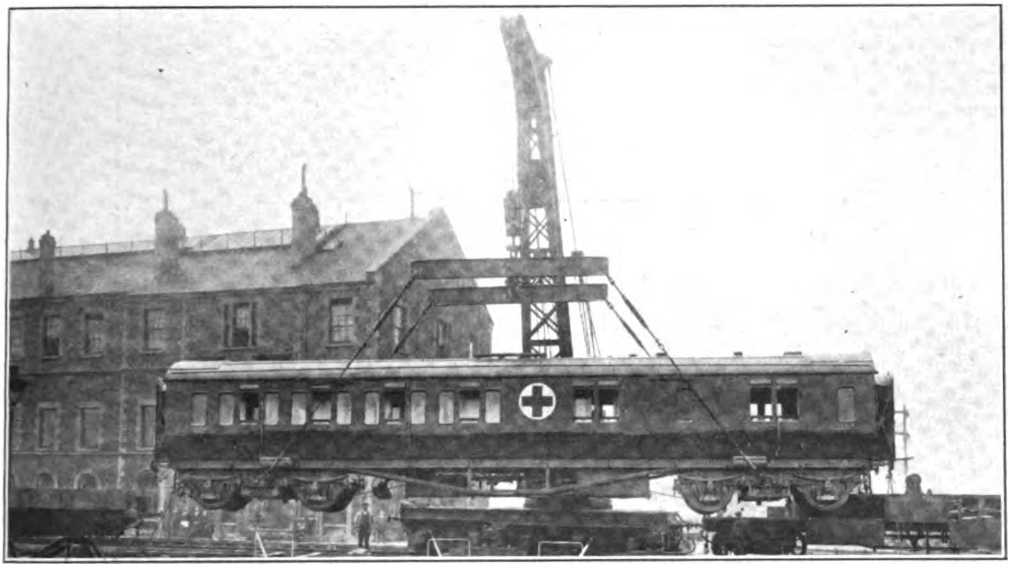
As is well known, the Midi Railway Company, of France, has a large single-phase electrification scheme on hand for some of its main lines. Much experimental work and many careful tests have been carried out by the company in connection both with locomotives and with the method of suspending the overhead conductors. The section of line between Marquixanes and Villefranche, which has a maximum gradient of 1 in 59, was chosen for the tests of the trial locomotives, and it was specified that the locomotive should be able to start a train of 400 tons (896,000 pounds) on this section, that it should be able to draw a train of 280 tons (627,200 pounds) at 25 miles an hour up-gradient on the section, and a train of 100 tons (224,000 pounds) at 37 miles an hour. Descending from Villefranche to Marquixanes, the motors had to work regeneratively, and the speed to be capable of regulation to half of that specified for the ascent. The gauge of the line is 4 feet 8½ inches, and the load per driving axle 40,320 pounds, the total weight 191,072 pounds, and the lateral play of the driving axles both ways 2 9-16 inches. The maximum speed is 46½ miles an hour, and the motors can exert 1,500 horsepower. Current supply is from an overhead line at 12,000 volts. There are three driving axles in the center and a two-wheel bogie at each end. Each driving axle is driven by an independent motor, and no coupling rods are used. The motors are rigidly fixed to the underframe directly above the axles, and drive the axles through gearing, a flexible coupling arrangement being fitted, which allows a certain amount of horizontal, vertical, or lateral movement in the road wheels, independent of the motors or gearing.

British Engines for French Railways.

From the commencement of the war France has looked to this country for assistance in industrial matters almost as much as in the supply of men and military munitions. Khaki, leather equipment, and food have been sent in enormous quantities across the Channel; the latest development in



Two New Locomotives Recently Constructed for the North British Railway Company.



LIFT EQUIPMENT OF ENGLISH ROAD SHOWN HANDLING KITCHEN CAR OF CONTINENTAL AMBULANCE TRAIN.

this connection is, however, a contract placed, by the consent of the British Government, with the North British Locomotive Company for the supply of one hundred high-power locomotives to be used on the State Railways of France. The sum involved may be estimated at upwards of $5,000,000, but it is more than likely that supplementary orders will greatly increase this amount. Britain's Allies have been compelled to appeal to us to help them in this matter owing to the fact that many important locomotive manufacturing undertakings on the other side of the Channel are situated in territory which has not yet been recovered from the Germans. Moreover, labor is very scarce everywhere in France, and we are probably rendering as great a service to our Gallic neighbors in supplying fresh rolling stock for their railways as in any of the efforts which have been put forward during the past ten monthes to render them efficient support in the field. In fact, the State Railways of France are being called upon imperatively to supply larger and larger quantities of munitions and equipment for the fighting lines, and this can only be accomplished by a very substantial addition to the amount of hauling power at present available. To assist in carrying out this work recourse has been had to one of the largest works in England, and one need not doubt as to the nature of the response. It is understood that the contract in question is to be completed before the end of the year, and this will involve a very large labor force, which, however, can be got together without any very great difficulty, more especially as the North British Locomotive Company has maintained excellent relations with the unions throughout the stress and turmoil of the past ten months.

LOCKING RAILWAY CARRIAGE DOORS.

A device for simultaneously locking the doors of the carriages of a railway train, invented by a parcels porter at King's Cross Railway Station, London, is operated by means similar to those employed in connection with the automatic vacuum brake. On each carriage he provides a vacuum cylinder, the piston of which through a bell-crank lever and connecting rods confers motion in a direction parallel with the length of the carriage on a pair of rods sliding on rollers. Those rods, of which there is one on each side of the carriage, are provided at intervals with pins or abutments which engage with levers that operate the door catches. Normally the latter are held out of engagement by springs, but the effect of creating a vacuum in the vacuum cylinder is to overcome the springs, thus forcing the bolts into the sockets provided for them in the doors. To permit any of the doors to be shut after the vacuum has been applied the bolts are made in two portions sliding one upon the other and normally held apart by a spring, so that after a bolt has been brought into the engaged position the loose end may be pressed back by the door acting on its inclined end, to return into the socket when the door is shut. The doors are thus locked only when there is a vacuum in the cylinder, and are unlocked whenever it is destroyed either intentionally by the driver or guard or accidentally by the parting of the train pipe.

RAILWAY ACCIDENTS AND CAB-SIGNALLING.

There is a significant paragraph in the report of Lieutenant-Colonel Druitt, the Board of Trade inspector, who investigated the Leeds express collision in March last, the importance of which will be apparent to those who have followed the history of automatic and cab-signalling methods on British railways. The development of systems of repeating line signals has made marked progress during recent years, and many companies have been experimenting with electrical or purely mechanical devices for giving warning to the driver of a train in the event of signals at danger being invisible or over-run. The discussions which have taken place before the Institution of Mechanical Engineers and other technical bodies have revealed a belief among railway engineers that an extension of such auxiliary signalling devices in the interests of the traveling public is destined to be made in the near future. Hitherto a strong point made by the critics of cab-signalling methods is that whatever success may have been achieved in experimental working, no Board of Trade railway inspector has in a report on a railway accident arising from the disregard of signals ever recommended the adoption of auxiliary apparatus of this character. In his report on the Leeds disaster, however, Lieutenant-Colonel Druitt has cut away the ground from under such critics by referring to the Leeds accident as one of a type which points to the desirability of the adoption of arrangements which could give the driver warning of the position of the distant signal. This official recognition should do much to assist the development of those automatic systems which on the Great Western and other lines have been shown to be reliable in operation.

Railway Lifting Equipment.

The accompanying photograph presents a striking illustration of a new lifting equipment now in operation on the Great Western Railway at Swindon, the great machine shop center for this railway. This enormous crane, which can be operated at any desired point, has sufficient power to lift an entire car from the tracks and place it in any position desired. The plant in the view, is engaged in handling the kitchen car of the Continental ambulance train

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Personal

J. C. Tucker.

J. C. TUCKER, who has recently been appointed assistant to the vice-president of the Erie Railroad, began railway work in 1879, as a station helper on the Buffalo & Southwestern, now a part of the Erie. He became telegraph operator in 1880, and station agent in the following year. In 1883 he was transferred to the division headquarters and after six months' work there was appointed train dispatcher. In 1887 he was made trainmaster, and in 1890 assistant trainmaster of the Buffalo Division and branches of the Erie and of the Buffalo & Southwestern. The following year he was made trainmaster of that district. In May, 1901, Mr. Tucker was appointed superintendent of the Rochester Division of the Erie, and in October of the following year superintendent of the New Jersey & New York, Greenwood Lake, Northern Railroad of New Jersey and branches, all of these being parts of the Erie. In May, 1903, he was appointed assistant superintendent of the New York Division of the Erie, and in December, 1904, was made superintendent of the Allegheny Division, and the following year had his authority extended over the Bradford Division. He was transferred as superintendent to the Rochester Division in 1907, and was made general inspector of transportation of the Erie on June 1, 1907. The following year he was made special representative on the general manager's staff and was appointed assistant to the general manager in January, 1914.

J. C. TUCKER.

W. S. Martin.

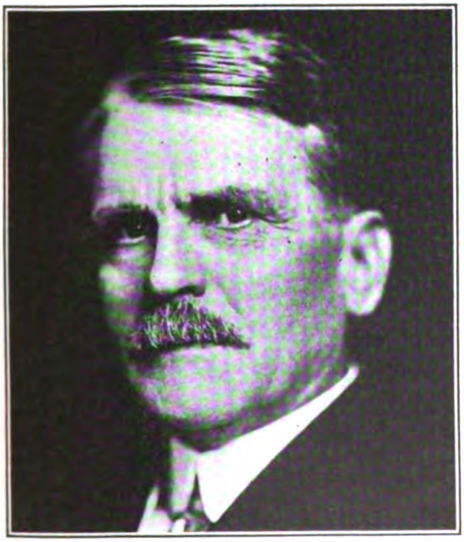
WILLIAM S. MARTIN, who on June 1st. was elected president of the Union Railway Company at Memphis, Tenn., was born in 1863 at Keokuk, Ia. He entered railway service in 1878, and since that time has been consecutively to February 2, 1880, clerk and telegraph operator, Missouri, Iowa & Nebraska Rd. at Keokuk, Ia.; February 2, 1880, to July 1, 1880, assistant agent at Alexandria, Mo.; July 1, 1880, to June 1, 1881, agent, same road, same place; June 1, 1881, to July 5, 1881, with Western Union Telegraph Co. at Kansas City, Mo.; July 10, 1881, to September 20, 1881, operator freight office, Wabash, St. Louis & Pacific Ry., at Keokuk, Ia.; September 20, 1881, to January 3, 1882, operator in dispatcher's office; January 3, 1882, to January 3, 1883, dispatcher, and January 31, 1883 to January 4, 1885, chief dispatcher, same road, at Centerville, Ia.; February 14, 1885, to April 15, 1887, chief dispatcher, Louisville, Evansville & St. Louis; April 15, 1887, to July 1, 1889, master transportation, same road; July 1, 1889, to November 15, 1889, trainmaster, Nashville & Decatur Division, L. & N.; November 15, 1889, to October 1, 1891, assistant superintendent, Nashville Division, Louisville & Nashville Rd. and Nashville, Florence & Sheffield Rd.; October 1, 1891, to April 1, 1895, superintendent, Owensboro & Nashville Rd.; April 1, 1895, to January 1, 1898, superintendent, Louisville Division, Louisville & Nashville Rd.; January 1, 1898, to September 1, 1900, superintendent, Henderson & St. Louis Division, same road at Evansville, Ind.; September 1, 1900, to April 1, 1902, general superintendent, Denver & Rio Grande Rd.; June 1, 1902, to December 31, 1912, superintendent, Southern Ry. at East St.

W. S. MARTIN.

Louis, Ill. to Princeton, Ind.; January 1, 1903, to May 31, 1907, general manager, Mexican International Rd.; June 1, 1907, to September 1, 1913, assistant general manager, Denver & Rio Grande R. R., at Denver; appointed general manager September 1st. He held this last position until his recent election to the presidency of the Union Railway.

D. F. Mustard.

D. F. MUSTARD, who has been elected treasurer of the Central Indiana Railway Company, was educated in the common schools of Anderson, Ind. Mr. Mustard's experience has largely been outside the railroad field, until his recent election. He has served as deputy's auditor, clerk, recorder and treasurer of Madison County, and has also been manager and president of the Citizens' Bank of Anderson since November, 1881. In a broader sense, he has served the State of Indiana as trustee of the Indiana Soldiers' and Sailors' Orphan Home and on other important commissions by appointment from the Governor. Mr. Mustard is a Civil War veteran, having served in the 34th Indiana Regiment for three years.



D. F. MUSTARD.

Fred Zimmerman.

FRED ZIMMERMAN, who was recently elected president of the Chicago Traffic Club, entered railway service in 1882 as office boy with the Green, Kankakee, Chicago & Louisville Southern, and Southern Dispatch Fast Freight Lines and continued with the several organizations of the Chicago & Ohio River Railroad Lines at Chicago and Indianapolis until April, 1887, when he was employed by the Monon as rate and tariff clerk at Chicago until February, 1890, when he was employed by the Michigan Central at Chicago and Detroit. In October, 1899, he was appointed assistant general freight agent of that company at Buffalo and subsequently promoted to the same position at Chicago. On November 1, 1899, he was made general freight agent of the Indiana Harbor Belt Railroad at Chicago; on January 1, 1911, also general freight agent, Chicago, Indiana & Southern Railway. March 1, 1914, he was appointed general freight agent of the Lake Shore & Michigan Southern Railway and Dunkirk, Allegheny Valley & Pittsburgh Railroad, at Cleveland, Ohio. November 1, 1914, he was elected vice-president of the Chicago, Indianapolis & Louisville Railway (Monon Route) at Chicago.

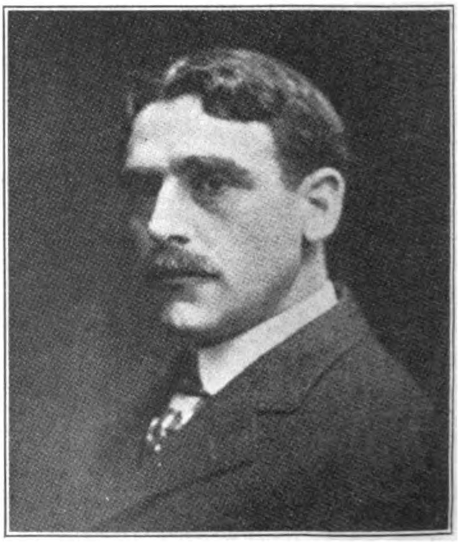
FRED ZIMMERMAN.

Edward A. Haid.

EDWARD A. HAID, who has been appointed general attorney of the St. Louis Southwestern Railway, was born in St. Louis, November 4, 1881; educated in public grammar schools of St. Louis until about twelve years of age, when he entered the employ of Hon. Elmer B. Adams (then United States District Judge, now United States Circuit Judge sitting on the Circuit Court of Appeals for the Eighth Judicial Circuit) as office boy; studied shorthand at home and took position with a commercial house as stenographer when fourteen years of age; entered law office of L. Frank Ottofy, Attorney-at-Law, St. Louis, as stenographer in September, 1897; became Secretary to Hon. Amos M. Thayer, United States Circuit Judge at St. Louis, December 1, 1901; studied law at the Benton (night) Law School at St. Louis, graduating in June, 1904; entered general practice of law at St. Louis, January 1, 1905, and left general practice February 4, 1907, to take position as chief clerk in the Law Department of the St. Louis & San Francisco Railroad Company; left the latter position December 1, 1912, to become assistant general attorney of the St. Louis Southwestern Railway Company, in which latter position was in charge of interstate commerce work; in latter position was connected with Round Bale Cotton Case; Investigation & Suspension Docket No. 184 (involving hardwood rates from Southwestern Producing Territory to Ohio, Mississippi and Missouri River Crossings); represented all Southwestern Lines in I. & S. Docket No. 520 (involving rates on yellow pine and hardwoods from Southwestern Producing Territory to Ohio and Mississippi River Crossings and to New Orleans), which hearing lasted daily from January 13, 1915, to January 30, 1915, inclusive; was actively interested in the City of Memphis Case, I. C. C. Docket No. 7304, which bids fair to be a stronger Shreveport Case than the Shreveport Case itself; acted as counsel for all carriers in presenting application for increased freight rates before the Arkansas Railroad Commission, which has recently resulted in an increase in revenue of about twelve per cent, and represented the St. L. I. M. & S. and St. L. S. W. Ry. Cos. in securing an injunction against the decision of the Commission in the Metropolis Case, which involves the question whether a common carrier can be charged with discriminating against a point which it does not serve directly and to which it published no through rates, which case is now pending in the Supreme Court of the United States and will be argued in October next.

Frederic B. Lincoln.

FREDERIC BOWEN LINCOLN, who has been appointed general manager of the Erie Lines East of Buffalo and Salamanca, with office at New York City, was born in October, 1867, at New York, and was educated in the public schools and at New York University. He began railway work on May 20, 1887, in the engineering department of the Erie, and to June, 1892, was consecutively rodman, transitman and assistant engineer. He was then, for over three years, assistant engineer of the Allegheny and Susquehanna Divisions, and from November, 1895, to May, 1897, was trainmaster of the Toby Branch, in charge of maintenance and operation of the same road. In May, 1897, he became agent of the Erie at Salamanca, N. Y., and from December, 1898, to March, 1902, was superintendent of the Tioga Division of the same road and superintendent of the Blossburg Coal Company. He was then, to October, 1903, general manager of the Buffalo — Susquehanna Coal and Coke Company, and from October, 1903, to the following February was special agent for the vice-president and general manager of the Erie. In February, 1904, he was appointed superintendent of the Susquehanna Division of the Delaware & Hudson, remaining in that position until August, 1905, then for a short time he was superintendent of construction of the Delaware & Eastern. From October, 1905, to March, 1906, he was superintendent of construction of the O'Rourke Engineering Construction Company,



FREDERIC B. LINCOLN.

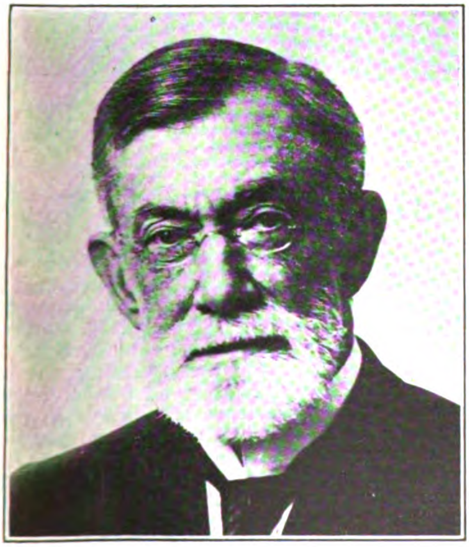
New York, engaged on the New York Central & Hudson River terminal work, at Forty-second Street, New York. On March 15, 1906, he became assistant to the receiver of the Pittsburgh, Shawmut & Northern; in January, 1914, he was appointed general superintendent of the Erie grand division of the Erie, and now becomes general manager of the Lines East of Buffalo and Salamanca of the same road.

George M. Ball.

GEORGE M. BALL, who since 1881, has been manager of the Empire Line, one of the Pennsylvania Railroad's fast freight lines, will retire from active duty on June 30, 1915, and will be placed on the company's "Roll of Honor," under the operation of the pension regulations. Upon Mr. Ball's retirement, the management of the Empire Line will be made an additional duty of the freight traffic manager.

In January, 1868, Mr. Ball entered the service of the Empire Transportation Company, which a short time previously had been organized in the interest of the Pennsylvania Railroad Company, for developing through traffic for the Philadelphia and Erie Railroad with its connections, eastward and westward. He succeeded Robert W. Smith as Eastern Superintendent of the Empire Transportation Company at Williamsport, Pa., February, 1871, and was transferred to Philadelphia in 1876. In 1877, the Pennsylvania Railroad having purchased the Empire Transportation Company, he was continued in its service and was promoted to the position of manager, Empire Line, in 1881, having charge of its operation east and west of Erie, Pa.

Alfred J. Ball was born at Philadelphia, on July 22, 1882. He was educated in that city at the Public Schools, Hamilton School and Brown Preparatory School. He also attended the Business Science Course at the Drexel Institute.



GEORGE M. BALL.

Mr. Ball entered the railroad service in the office of the manager, Empire Line, at Philadelphia, on December 20, 1900, as stenographer. After serving in various capacities, he was promoted to freight solicitor, Empire Line, at Philadelphia, on October 19, 1903, and to agent, Empire Line, Philadelphia District, on July 1, 1908. On July 1, 1915, he will assume his new duties as Eastern Superintendent of the Empire Line, with office at Philadelphia.

George M. Ball, one of the oldest employes connected with the Pennsylvania Railroad in length of service, was born in Philadelphia in June, 1845. His first business experience was with a shipping and commission firm, controlling coastwise lines of vessels between Philadelphia, Boston, Providence, and other Eastern ports.

W. R. Armstrong.

W. R. ARMSTRONG, who has been appointed general manager and chief engineer of the Salt Lake and Utah Railroad Company, began railroad work as axeman on engineer corps Kansas City Southern Railroad, June, 1892, held various positions in engineering department. Made superintendent of construction same Company, 1895, in charge of tracklaying, bridge work and all train service at the "front." January 1st, 1908 made superintendent, Kansas City and Northern Connecting Railway, at that time a portion of the same system. Held this position until January, 1900.

January, 1900, until November, 1905, locating engineer and superintendent of construction, Kansas City, Mexico & Orient Railroad in the United States and in Mexico.

November, 1905, to June, 1906, assistant engineer, Oregon Short Line Railroad and Southern Pacific, making special reports on engineering matters, June, 1906, to February, 1908, construction engineer in charge of construction Yellowstone Park Railroad and Northwestern Railroad in Oregon for the Oregon Short Line Railroad Company. February, 1908, to July, 1908, assistant superintendent, Idaho Division, Oregon Short Line, at Nampa, Idaho. July, 1908, to March, 1913, superintendent, Montana Division, Oregon Short Line Railroad.

May, 1913, to March, 1915, assistant general manager, Salt Lake & Utah Railroad, in charge of construction and operation. April 1st, 1915, made general manager and chief engineer of the same Company.

C. B. Williamson.

C. B. WILLIAMSON, who has recently been appointed traffic manager of the Chesapeake Western Railway, was born in Rockingham county, Virginia, in 1880 He entered the employ of the Chesapeake Western Railway in 1901 as clerk in the general office at Harrisonburg, Va. In December, 1903, he was appointed auditor and local treasurer and in June, 1906, became superintendent He held the latter position when appointed on June first to the position of traffic manager.

M. A. Mulligan.

M. A. MULLIGAN has been appointed superintendent of the New York Division of the Lehigh Valley Railroad, succeeding the late M. C. Roach. His territory will extend as far west as Elizabeth, N. J., including all the terminals of the railroad at Jersey City, Bayonne, etc., as well as its harbor operations. Mr. Mulligan entered the service of the Lehigh Valley at the age of sixteen as a water boy for a track gang. Later he was brakeman, conductor and fireman in train service, afterward going to the Erie Railroad and filling similar positions. He spent fifteen years with the Erie, during which time he was yardmaster and general yardmaster of the New York terminals. He returned to the Lehigh Valley in 1910, as general yardmaster for the New York Division. Later he became trainmaster of this division and some months ago was appointed by the management to the position of general yard inspector for the purpose of looking into conditions in all of the larger yards of this System. Mr. Mulligan has been regarded as an expert in yard operation and several of his articles on the subject have appeared in the technical press.

M. A. MULLIGAN.

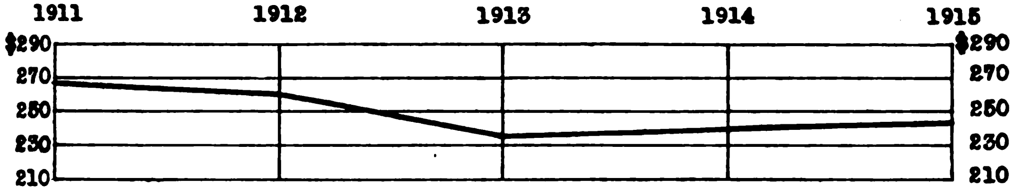
Financial

Railway Revenues and Expenses for March.

THE Bureau of Railway Economics at Washington, has issued its regular monthly statement covering the revenues and expenses of steam roads in the United States for the month of March. Net operating income, according to this report increased $3.00 a mile during the month, or 1.2 per cent, as compared with March, 1914. This increase was due not to an increase in gross earnings but to reductions in expenses, which have been effected throughout the country but particularly in the East. In March, 1914, net operating income per mile was 2.9 per cent greater than in March, 1913.

Total operating revenues amounted to $231,499,126, a decrease from 1914 of $15,923,105. Operating expenses were $164,731,902, a decrease of $16,966,890. Net operating revenue amounted to $66,767,224, an increase of $1,043,785. Taxes amounted to $11,133,218, a decrease of $187,273. This left $55,581,122 for net operating income, available for rentals, interest on bonds, appropriations for improvements and new construction and dividends. Operating revenues per mile of line averaged $1,012, a decrease of 7.3 per cent; operating expenses per mile averaged $720, a decrease of 10.2 per cent; net operating revenue per mile averaged $292, an increase of 0.7 per cent, while taxes per mile were $49, a decrease of 2.5 per cent. Net operating income per mile was $243, an increase of 1.2 per cent.

TREND OF OPERATING INCOME PER MILE OF LINE FOR THE MONTH OF MARCH.



Railways operating 228,661 miles of line are covered by this summary, or about ninety per cent of the steam railway mileage in the United States.

Total operating revenues of the Eastern railways per mile of line decreased 5.9 per cent as compared with March, 1914, operating expenses decreased 11.0 per cent, net operating revenue increased 12.7 per cent, taxes increased 0.6 per cent, and operating income increased 15.6 per cent.

Total operating revenues of the Southern railways per mile decreased 11.9 per cent, operating expenses decreased 12.3 per cent, net operating revenue decreased 10.9 per cent, taxes decreased 4.7 per cent and operating income decreased 12.0 per cent.

Total operating revenues of the Western railways per mile decreased 6.5 per cent, operating expenses decreased 7.8 per cent, net operating revenue decreased 3.8 per cent, taxes decreased 4.5 per cent, and operating income decreased 3.8 per cent.

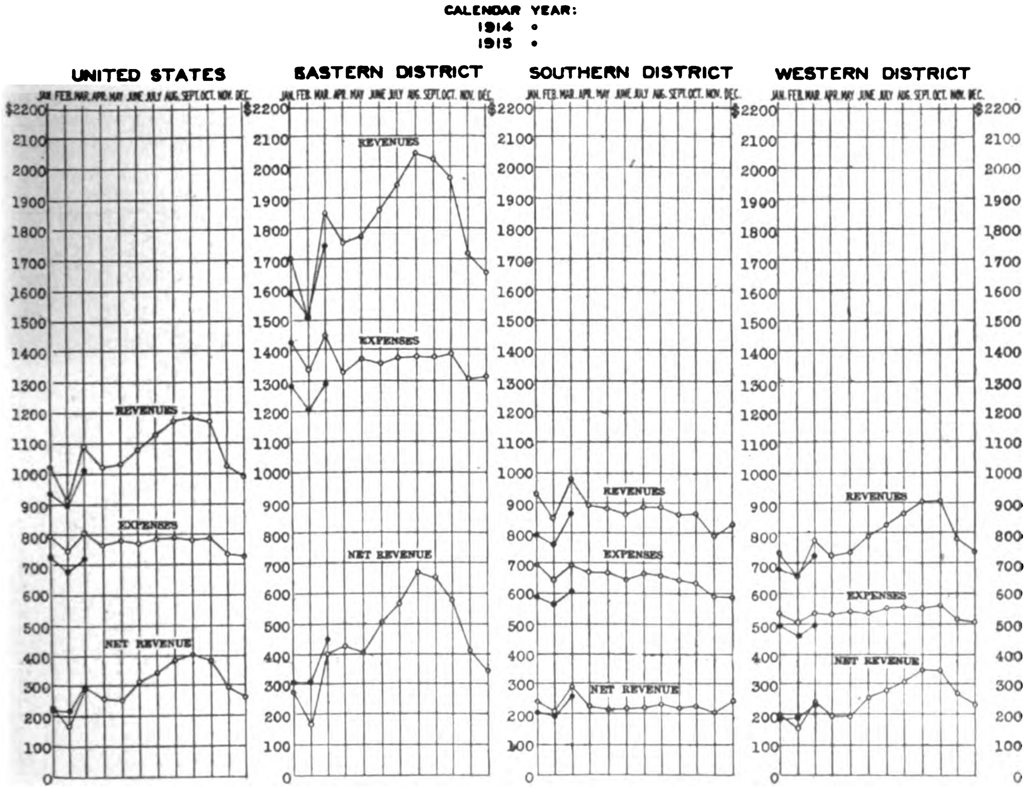
The nine months of the current fiscal year show a decrease in total operating revenues per mile of line of 7.8 per cent as compared with the corresponding period of the preceding year, a decrease in operating expenses per mile of 9.8 per cent, a decrease in net operating revenue per mile of 2.8 per cent and a decrease in net operating income of 3.0 per cent.

The net operating income per mile increased 6.0 per cent in the East, decreased 19.5 per cent in the South, and decreased 4.0 per cent in the West.

March net operating income per mile was 1.2 per cent greater in 1915 than in 1914; 3.6 per cent greater than in 1913; 6.7 per cent less than in 1912; and 9.1 per cent less than in 1911.

MONTHLY REVENUES AND EXPENSES PER MILE OF LINE

ROADS HAVING ANNUAL OPERATING REVENUES ABOVE $1 000 000



The points on the vertical lines are of significance only in showing the condition for the particular month. The lines connecting the points assist in tracing the change from month to month but do not indicate the trend during the month, nor are they cumulative for the period.

Railway Retrenchments During March.

RAILWAYS of the United States by the end of the first three-quarters of the current fiscal year, March 31st, had cut into less than half the loss on net revenues which had prevailed at the end of the first half year, December 31st. The result was accomplished entirely by gains in net affected in February and March.

This indication that the determined efforts at economy exerted by the carriers in their fight against adverse traffic conditions has begun to tell, is contained in figures compiled by the Bureau of Railway News & Statistics, based upon the official report of the Interstate Commerce Commission for the nine months ended with March. The entire operated mileage, about 256,000 miles, is included, against 228,660 in the Commission's figures.

That the improvement which has been effected since January is the result of efficient management and not of assistance from larger revenues is shown by the fact that for the nine months there has been a loss of almost $165,000,000 in gross revenues under last year. Of this loss over $36,000,000 has occurred since January 1st. In the nine months there has been a contraction of slightly over $153,000,000 in operating expenses, of which over $49,000,000 has been effected since January 1st.

There was thus an increase in net of almost $13,000,000 in the quarter January to March, against a loss in net of over $24,000,000 in the two quarters July to December. As a result the total loss in net for the three quarters had been cut by March 31st to $11,671,000.

The Bureau's totals for the nine months and March are as follows, with comparisons:

Nine months	1915	Decrease
Gross	$2,234,255,000	$164,829,000
Expenses	1,582,133,000	153,158,000
Net	652,122,000	11,671,000
Taxes	104,267,000	917,000
Income	547,855,000	10,754,000
March		
Gross	239,771,000	16,546,000
Expenses	171,097,000	17,560,000
Net	68,674,000	*1,014,000
Taxes	11,576,000	205,000
Income	57,098,000	*1,219,000
Mileage	256,058	*2,534

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* Increase.

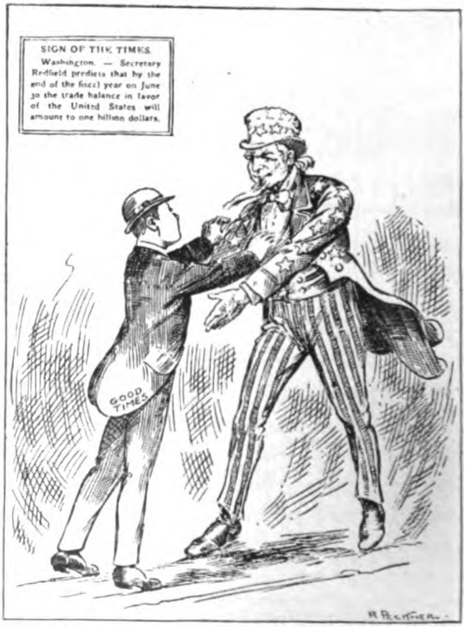
The gain of $1,041,000 in net for March followed another in February which reached $12,457,000 while January showed a loss of $672,000. These are practically the first gains in net since the outbreak of the European war, the only two previous gains reported being small ones in August and September, before the full effect of the war was reflected in earnings. These were followed by losses of from $7,000,000 to $9,000,000 from October to December.

Despite the improvement since January 1st, however, the railways are still far below the level of two years ago, as last year's net for nine months showed a loss of over $88,000,000.

A striking feature of the current figures is a reduction in taxes compared with last year. February and March each show a decrease, which with others in November and December result in a saving of $917,000 for the nine months. Taxes, however, have been less prone to fall than have earnings, for taxes for nine months this year were 4.66 per cent of revenues, against 4.39 per cent last year; while in March this year they reached 4.83 per cent of revenues against 4.60 per cent last year.

The General Outlook.

RECENT developments all indicate that the country is about to enter into a period of increased prosperity. While our present relations with Germany and Mexico make the present outlook uncertain, it is believed that actual warfare will be avoided, particularly in the former case. In the meantime, war orders of enormous proportions are being placed and the steel and allied industries are busy to an extent not experienced within recent months. Furthermore, these orders are apparently growing in size and, as the summer advances, will be more largely extended to our food supplies and to other commodities which, at the present time, the warring nations are not in a position to supply from domestic resources. Add to this the fact that a billion bushel grain crop appears to be in sight and that the railroads are at last buying large supplies of locomotives, cars and other equipment, and the reason for a more optimistic view point is readily appreciated. Various war rumors have kept the market more or less on the jump, but a strong undertone has been developed, which prophesies well for the future. Railway earnings are also beginning to show marked improvements, and recent net results have been more satisfactory than for many months.


SIGN OF THE TIMES.
Washington. — Secretary Redfield predicts that by the end of the fiscal year on June 30 the trade balance in favor of the United States will amount to one billion dollars.
GOOD TIMES
R. Rechner

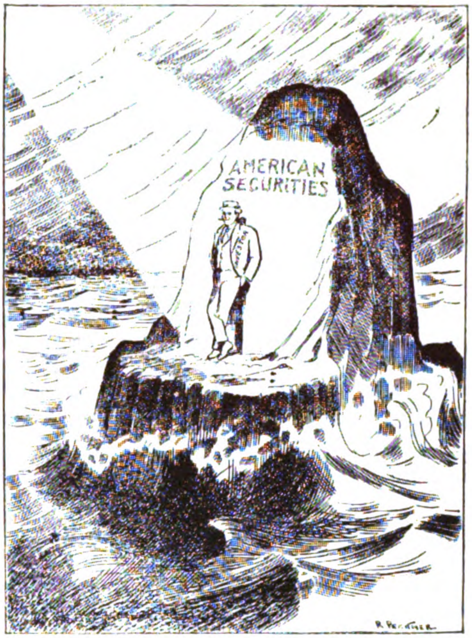
THE PRODIGAL SON

From Financial America.

While the bond record for May was far from satisfactory, carrying the average of leading railway bonds below that of the lowest prices during the 1907 panic, this was due in considerable part, to the decline in general credit of certain of these roads, and a marked improvement is confidently expected in the near future.

The Record of Railway Receiverships.

THE total mileage of railroads of the United States in the hands of receivers is at present almost exactly the same as the total on June 30, 1896, which was the highest ever recorded in the history of the country. The proportion of mileage in the hands of receivers to total mileage operated is much less than it was in 1896, because of the very much larger mileage now operated At present there is approximately 30,500 miles of railroad in the hands of receivers. The total mileage in the hands of receivers on June 30, 1896, was 30,475. The total par value of securities outstanding of roads operated by receivers in 1896 was $1,795,900,000. The par value of securities outstanding for the roads now being operated by receivers is approximately $1,815,900,000. The larger systems which are now in the hands of receivers are the Chicago, Rock Island and Pacific, with 8,328 miles; the St. Louis and San Francisco, with 4,747 miles; the Wabash, with 2,514 miles; the Pere Marquette, with 2,322 miles; the Chicago and Eastern Illinois, with 1,282 miles; the International and Great Northern, with 1,106 miles, and the Cincinnati, Hamilton and Dayton, with 1,015 miles. The principal roads that were in the hands of receivers in 1896 were the Northern Pacific, with 4,533 miles; the Union Pacific, with 1,836 miles, and its subsidiaries having an additional mileage of approximately 5,900 miles; subsidiaries of the Atchison, Topeka and Santa Fe, with approximately 2,000 miles; the Baltimore and Ohio, with 2,073 miles; the Norfolk and Western, with 1,571 miles, and the Philadelphia and Reading, with 884 miles



THE ROCK

From Financial America.

The Rock Island receivership dates back but a few weeks. The mileage of roads that became bankrupt in 1914 was 4,222; in 1913, however, 9,020. With the exception of 1908, in which year the Seaboard Air Line and the International and Great Northern were turned over to receivers, there was no year in which as much as 4,000 miles of road became insolvent back to 1896. The Seaboard Air Line has been taken out of the hands of receivers since 1908, and the International and Great Northern was taken out, but had to again seek the protection of the courts at the outbreak of the European war

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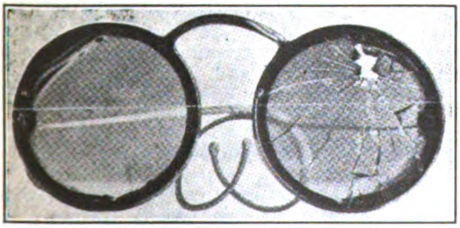
Operation

The Protection of Goggles in Machine Work.

NO device worn by the railway employe has proved more efficacious in protecting him from injury than the goggles which are now generally authorized for those working in machine shops or at other occupations which are likely to develop eye injury. The accompanying illustration represents a pair of goggles worn by an employe of the Grand Trunk Railway, while cutting out counter sunk rivets with clipping hammer in the Strafford shops. In this case, the flying piece of metal struck the lens with such force as to go entirely through it. While the man received no injury, it appears highly probable that without the use of the goggles he would have lost his eye. It might be supposed that in a case of this kind, the broken pieces of glass would be likely to enter the eye, or that the piece of metal, after penetrating the lens, might cause injury, but experience has shown that with a proper style of goggle, this is not the case, due probably to the fact that the instant an object strikes the lens, the disturbance results in an unconscious closing of the eye with such quickness that the eye is protected before the broken pieces of glass or object can strike it. Flying particles are by no means uncommon occurrences, and a large number of railway employes in the mechanical departments undoubtedly owe their freedom from eye injuries, to the use of those little safety devices.



A PRACTICAL ILLUSTRATION OF HOW GOGGLES SAVE THE EYE SIGHT.

Concrete Signs on the Santa Fe.

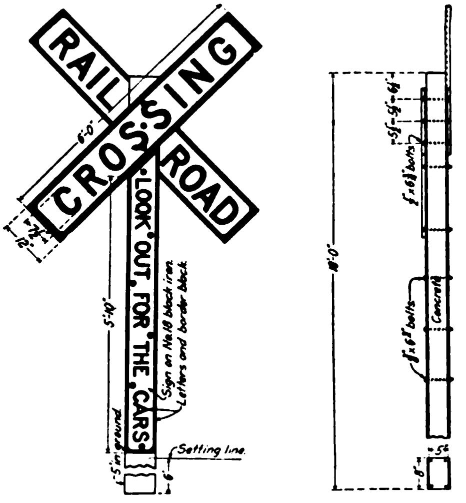
THE Santa Fe Road has recently been conducting experiments with concrete and metal signs. These signs are purely experimental as yet, but the results so far, indicate that wooden signs cannot compete with concrete and metal, if the latter can be made in quantities by machinery. So far they have been made by hand.

One of the most practical results obtained with this type of sign, and one which might escape notice, is that anyone, say the section foreman, can detach the metal-bearing legend in a moment, attach a fresh one and ship the old one to the shop to be repainted. The large saving in this feature alone, over the prevailing method of sending a painter over the road on a speeder, needs only to be mentioned to be appreciated. This and the tendency hunters have for shooting holes in signs are the considerations that led to abandoning the idea of making them wholly of concrete. In climates where metal corrodes too readily wood may be substituted for the metal parts which bear the legend.

Following is a table showing the cost of these signs made by hand as compared with the store department price of wooden signs:

Kind of sign—	Number made	Cost at Needles	—Store department prices*— Topeka	Cleburne	San Bernardino
Highway crossing	12	$3.75	$4.81	$4.75	.....
Station sign	18	1.90	1.62	1.72	$1.17
Yard limit sign, tentative Y shape	4	2.73	2.32	.....	.....
Whistling sign	18	1.90	1.63	1.60	.94
Section limit board ...	14 posts 28 signs	.75	.....	.80	.68
Station name board ...	3	4.45	.....	.....	.....
Rail rests	12	.50	.....	.....	.....

*Signs made in Topeka, Cleburne and San Bernardino carry overhead shop charges, while those at Needles do not.



CONCRETE CROSSING POST WITH STEEL ARMS.

The campaign for safety led to the design of concrete cellars for brakehose and air valves in the trainyards, and many of them have been installed in the terminals at Needles and Barstow from plans shown herewith. The cover of the cellar is of metal, flush with the surface of the ground, and eliminates what heretofore has been a considerable hazard. These boxes were made at Needles at a cost of $1.98 each and were then shipped to points where needed.

Periodical Meetings on the Baltimore and Ohio.

IN an effort to elevate the service to the highest state of efficiency in the interest of bringing the entire working force into close harmony, the Baltimore and Ohio Railroad has inaugurated a plan of holding periodical meetings between officials and employes for a discussion of railroad problems. The meetings are held monthly under the auspices of the general manager, who brings together the officials of all departments in the operating branch of the organization from the various sections of the system. A different point is selected as the place of meeting each month, affording an opportunity for the officials to familiarize themselves with railroad conditions and facilities of the company outside of their immediate territory. Another important feature of the meetings is the dispensing with a large volume of correspondence, which permits of closer supervision over work and through open conferences enables the officials to get a general understanding of railroad subjects. Thus the yardmaster at Cleveland learns why it was necessary to install a turntable 90 feet longer or replace a smaller one which had been in use at Brunswick, the largest individual yard in the world.

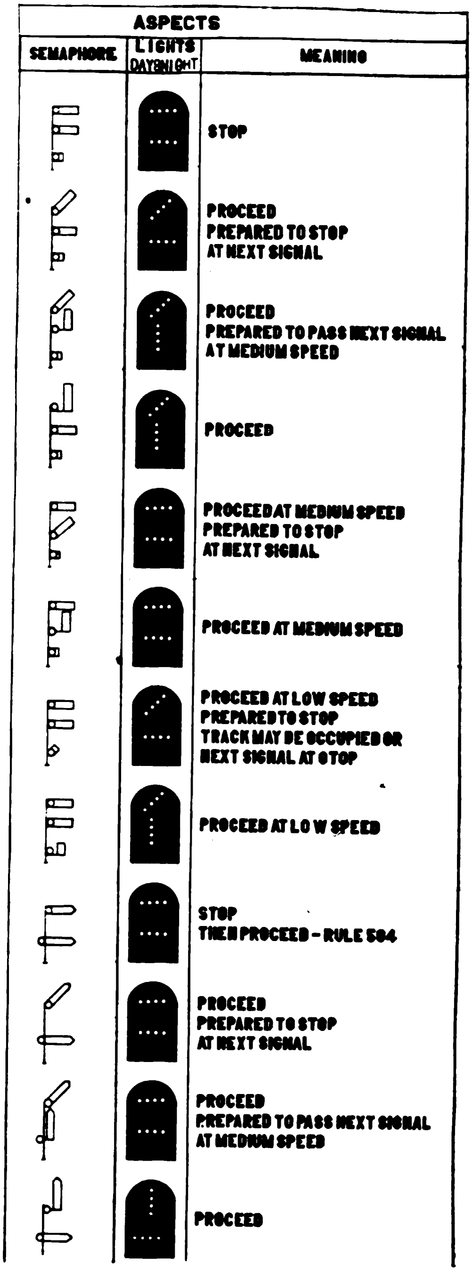
Meetings are also called to bring the employes together on the various divisions. An employe presides and, having the division and general officers present, better methods of moving traffic while holding the cost to a minimum are devised. At a recent meeting of the employes and the officials, held at Wheeling, Engineer Beck presented a paper in which he pointed out how it is possible to save fuel costs by having the employes and officials take every precaution to insure efficient use of engines.

Perfect Record for Baltimore and Ohio.

THE Shenandoah District of the Baltimore and Ohio Railroad, embracing the line through the Valley of Virginia from Harper's Ferry to Lexington, made a perfect record for punctuality of passenger trains during May, when 300 passenger trains arrived at their terminals on time. Ten scheduled passenger trains are operated in the Valley of Virginia each day, six of then running between Harper's Ferry and Strasburg and four between Harrisonburg, Staunton and Lexington.

Pennsylvania Railroad's New Signal System.

ATTENTION has been called in recent issues to the new electric signal system which has been put in operation on the Pennsylvania Railroad, on the electrified part of its main line between Broad Steet Station, Philadel-


ASPECTS
SEMAPHORE
LIGHTS DAY & NIGHT
MEANING
STOP
PROCEED
PREPARED TO STOP
AT NEXT SIGNAL
PROCEED
PREPARED TO PASS NEXT SIGNAL
AT MEDIUM SPEED
PROCEED
PROCEED AT MEDIUM SPEED
PREPARED TO STOP
AT NEXT SIGNAL
PROCEED AT MEDIUM SPEED
PROCEED AT LOW SPEED
PREPARED TO STOP
TRACK MAY BE OCCUPIED OR
NEXT SIGNAL AT STOP
PROCEED AT LOW SPEED
STOP
THEN PROCEED - RULE 504
PROCEED
PREPARED TO STOP
AT NEXT SIGNAL
PROCEED
PREPARED TO PASS NEXT SIGNAL
AT MEDIUM SPEED
PROCEED

Showing the Relation between the Positions of the Pennsylvania Railroad's New Signal Lights and their Semaphores.

phia. and Paoli, Pa. The following illustration, reproduced from a joint general order sent out by the superintendent of terminals, shows how the position of the new lights correspond with the old semaphore signals. This order, which has been signed for by all trainmen, enginemen and firemen on the divisions involved, states that if lights fail so as to prevent the correct reading of signal indications, it must be regarded as an imperfectly displayed signal.

Safety Signs on the Long Island.

In order to develop greater attention at railroad crossings on the part of automobile drivers, the Long Island Railroad has placed along the right-of-way at such points, huge signs which read as follows:

> This Sign May Save Your Life To-Day.
> All the Precautions in the World Will Not Save the Lives of Those Who Drive Automobiles Recklessly Over Railroad Crossings.
> When Approching a Crossing Please Stop, Look and Listen. We Are Doing Our Part.
> Won't You Do Yours?
> LONG ISLAND RAILROAD.

Some of the signs will be 50 feet long and 10 feet high, while others will be ten feet square. Several of them will be electrically lighted at night.

Not only is the Long Island Railroad putting up signs calling attention of motorists to the danger of driving recklessly over grade crossings, but it is going to conduct an advertising campaign with a series of "Life Saving Bulletins." These bulletins will make a plea for greater care on the part of drivers of motor cars on Long Island.

The railroad is doing everything in its power to stop accidents at grade crossings, of which there are still 631 on Long Island. Up to date, 305 have been eliminated at a cost of more than $15,000,000. At the present time, work on the elimination of 32 more crossings is in progress.

The frequency with which accidents have occurred at grade crossings on Long Island in the period from January, 1911, to May, 1915—about four and one-half years—is shown in a summary made public to-day by J. A. McCrea, general manager of the Long Island Railroad.

Since 1911 there have been some 507 accidents at grade crossings on Long Island as the result of recklessness on the part of automobilists, motorcyclists, carriage and wagon drivers. In that period 40 persons were killed and 111 persons injured, for none of which casualties the railroad company was responsible. Of the people killed 24 were in automobiles, 12 in wagons and carriages and 4 on bicycle and motorcycles. Of the people injured 67 were in automobiles, 26 in wagons and carriages and 18 included pedestrians, bicyclists and motorcyclists.

Fortunately, in 42 of the 507 grade crossing accidents nobody was injured.

In 157 cases automobile and wagon drivers defiantly ran their machines and vehicles through lowered gates, damaging the railroad's property to the extent of breaking the crossing gates. In attempting to cross the tracks 178 automobiles and wagons—125 autos and 53 wagons—were damaged. Some were struck by trains while others sustained damage by contact with lowered gates.

The compilation shows, in conclusion, that from 1911 to date a total of 16 horses were killed and 8 injured at Long Island grade crossings through the carelessness of their drivers.

Mechanical

New Type Gasoline Motor Car for Railway Service.

THE McKeen Motor Car Company has recently turned out a new 70 ft. baggage, mail, express and power car, equipped with 300 H. P. engine which has a power capacity sufficient to haul a standard steel railroad coach as trailer, making a double unit motor car train proposition which will have all the facilities and capacity of, and can therefore substitute for the ordinary five unite proposition, the locomotive, tender, three car, steam passenger train. This constitutes the largest gasoline motor car in the world.

Mr. A. L. Mohler, President of the Union Pacific Railroad has from the original conception of gasoline motor cars advocated and believed in only the higher powered cars and this new 300 horsepower engine was designed to meet his views.

The baggage, mail, express and power all on the same and lead car is a new idea and is the conception of Mr. Charles Ware, General Manager of the Union Pacific—Mr. Ware's idea is to have this new 300 horsepower car and coach afford all the facilities of the usual local and branch line train. The past ten years' experience in operating gasoline motor cars has shown such a stimulated and increased business from their use that even with their growth in size from a 30 ft. car at first to finally a 70 ft. passenger and power car hauling a 30 ft. trailer, the size of the gasoline equipment must be still further increased—the new double unit was designed in consequence.

Large revenue capacity in comparison to the low dead weight, the high acceleration, the facility (account of light weight) in making local stops, all tend to very much improved economic results in handling passengers, mail, express and baggage on main line locals as well as branch line trains. Greater economy, less depreciation, greater safety, higher speed, greater flexibility, higher earning capacity and greater stimulation of the public good will, are some of the advantages of the double gasoline unit over the five unit steam train.

On the initial trip the car made a speed of 55 miles per hour.

Car, Union Pacific No. M-23, will go into service between Kearney and Stapleton, Neb., displacing the old style steam train—the distance is 103 miles, making the round trip of 206 miles a day, which will result in a monthly average mileage of something over 6000 miles, which more than compares with the average monthly mileage of passenger locomotives. The seating capacity of the motor car train is 78 passengers, while that of the steam train was 70.

The McKeen Type "D" 300 horsepower reversible engine truck is an enlargement of the latest model Type "C," foolproof, 200 horsepower motor truck, the present standards and design being the results of ten years' experience in the practical operation of gasoline motor cars. The engine is reversed by air pressure mechanism, the control of which, together with the throttle is placed on the right hand side of the engine, enabling the motorman to remain seated while taking signals and operating the car, affording the maximum of ease and convenience.

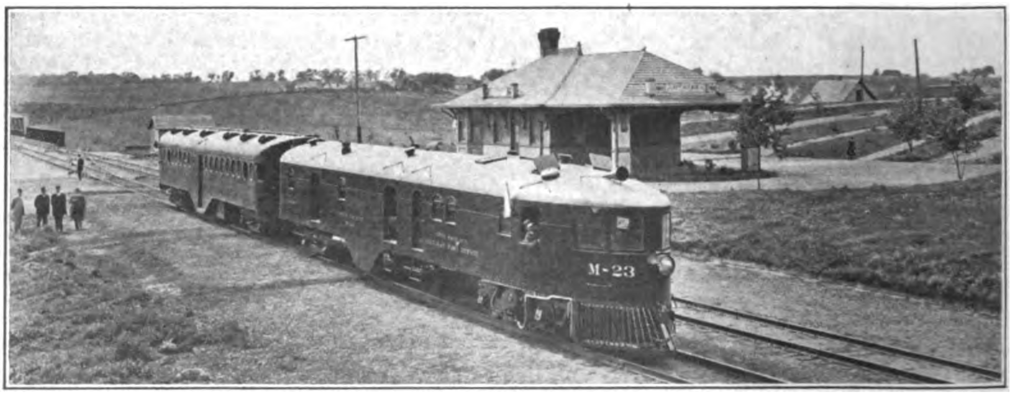
Weight on drivers is 33,800 lbs.; tractive effort, 8,200 lbs.

Main dimensions are: Length, 70 ft.; Length, U. S. Ry. P. O., 15 ft.; Length, Express-Baggage Compartment, 38 ft. 3⅛ in.; Total wheel base, 44 ft. 2 in.; Wheel base, front truck, 10 ft.; Wheel base, rear truck, 7 ft.

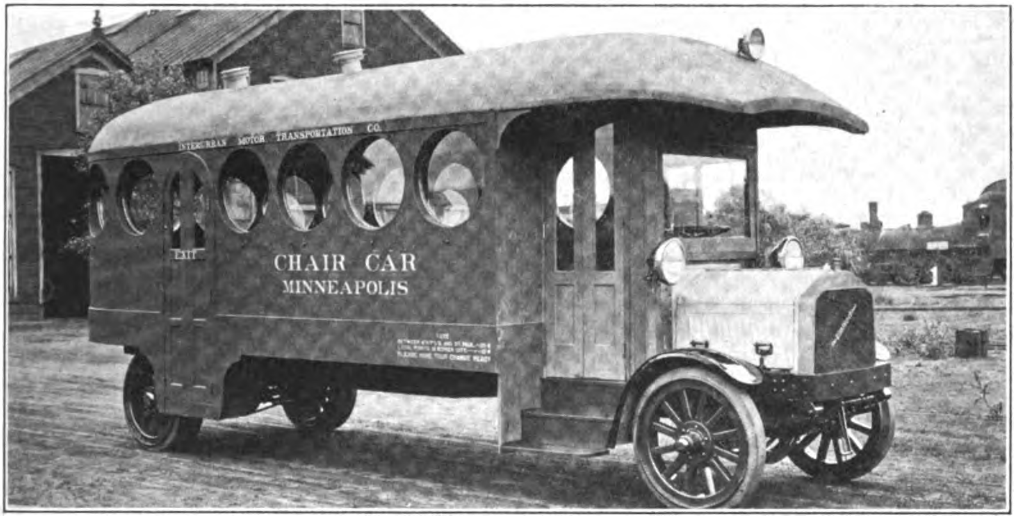
McKeen Highway Coach.

THE McKeen Motor Car Company has also recently developed a highway coach which has many novel features as shown by the accompanying illustration. This new vehicle is not an omnibus, street car or jitney, nor is it an electric car or a rail car of any kind, but is, as its name implies, a new kind of highway coach constructed for the purpose of running on paved and macadam streets and is claimed to combine a comfortable and luxurious transportation means in urban and interurban passenger service.

This highway coach is equipped with individual chairs, the chair being a new, patented and novel steel spiral spring, pneumatic shock-



NEW TYPE OF GASOLINE MOTOR CAR MANUFACTURED BY THE McKEEN MOTOR CAR COMPANY WHICH ACTS IN THE SAME CAPACITY AS STEAM LOCOMOTIVE AND BAGGAGE CAR COMBINED.



A HIGHWAY COACH FOR INTERURBAN SERVICE RECENTLY BUILT BY THE MCKEEN MOTOR CAR COMPANY.

absorbing cushioned seat for each and every passenger. This chair embodies all the cushioning effects of a two-foot spiral spring, and has four air cushions operating in conjunction therewith and differentiated on each other, the combination acting both as a cushion and shock absorber.

Plate glass, air tight round windows affording an almost uninterrupted panoramic view in all directions. The window when open is hinged to the ceiling and gives a full opening or circle of 24½ inches, which is a particularly appreciated effect and enhances the pleasure of riding during the high temperatures of the summer weather.

Exhaust suction ventilators on the roof maintain constant circulation and removal of the air, thereby keeping the coach free from foul atmosphere, a hygienic accommodation long desired by the urban traveler.

The elegance of the Cuban mahogany interior siding in combination with the white enameled arched ceiling is particularly attractive.

The car is electrically lighted and between each two windows is an electric push button for convenience of passengers in signaling the driver.

The door operating mechanism is controlled by the driver.

Entrance to the car is gained through a two-leaf outward folding door beside the driver's position, the prepayment fare collection being under his supervision. Exit is through double-leaf outward folding door in the side near the rear.

Instead of a high step from the mud, the passengers take this car at the curb (the coach entrance being only fifteen inches from the ground, the initial step is about seven inches) thereby avoiding the congestion in the streets and hazards of street traffic, as stepping into the highway coach does not in any way interfere with the passing of horses, wagons, motorcycles, automobiles, electric cars and other traffic on the highway. This car takes the passengers on one side only, and from the sidewalk.

Adequate heating facilities for the car are obtained from the waste product of the gasoline engine, there being twice the necessary heat units available for maintaining the proper temperature of the interior of this car in the coldest of winter days. With this large supply of waste heat there is no additional expense in providing the passengers with plenty of moderately heated fresh air, thus the best of atmospheric conditions can be maintained in this car at practically no expense whatever. This feature alone will be a source of attraction, for a great many people who have been closely confined in offices during the day will be only too glad to receive the exhilarating effect of warm fresh air in their conveyance on the trip home.

The chassis is a 3½ ton gasoline truck, having a wheel base of 216 inches; the length of the frame behind driver's seat is 22 feet.

The first two of the McKeen highway coaches will be operated between Minneapolis and St. Paul, Minnesota.

Results of the Locomotive Boiler Inspection Law.

AN interesting address was made by Mr. Frank McManamy before the March meeting of the Western Railway Club, on recent results of the locomotive boiler inspection law. These results were, to quote from Mr. McManamy's address, as follows:

"A resume of the work of the Locomotive Boiler Inspection service during the three years and eight months since the law became effective shows results for which we have not one single word of apology to offer. The following table shows in concrete form the inspection work performed each year since the passage of the law; and the decrease in the percentage of locomotives reported defective indicates in a measure the improvement in conditions:

	1914	1913	1912
Number of locomotives inspected	92,716	90,346	74,234

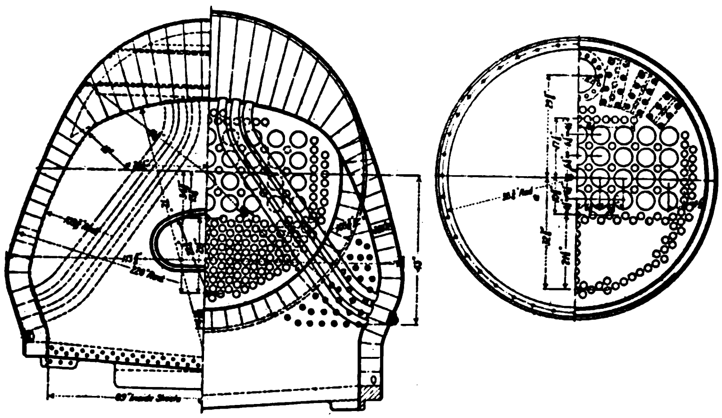
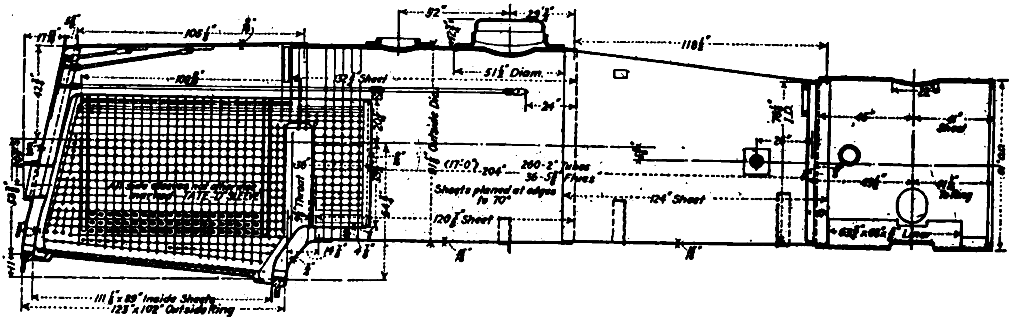

89" Inside Sheets

FIG. 1
SPECIFICATIONS

Steam pressure	200 lbs.			Flue lenth	17' 0"
Diameter, 1st course	78"			"	260 - 2"
" Dome "	91"			"	36 - 5-3/8"
Firebox	111" x 89"			Tubes, Arch	4 - 3" diam., 9' 8⅕" long
Mud Ring	6" front and sides, 5" back			Tubes Water Circulation	132 - 6" long
Grate Area	58 sq. ft.				Seamless Steel No. 9 gauge.
Heat Surface, Firebox	291	-	291 sq. ft.	Combustion Chamber	
" " Flues	3187	-	3187 " "	Fuel - Soft Coal	
" " Arch Tubes	22	-	22 " "		
" " Water "	820	-	2600 " "		
" " Total	4020				
" " " Equivalent			6100 sq. ft.		
" " Superheater			1000 sq. ft.		


105½"
100½"
92"
29½"
118½"
51½" Diam.
132½" Sheet
(17'0") 204"
260-2" Tubes
36-5⅜ Flues
Sheets planed at edges to 70°
124" Sheet
120½" Sheet
111½" x 89" Inside Sheets
123½" x 102" Outside Ring

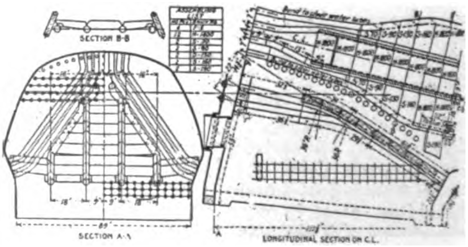
Number found defective ..	49,137	54,522	48,768
Percentage found defective.	52.9	60.3	65.7
Number ordered out of service	3,365	4,676	3,377

"It does not, however, fully show the improved conditions resulting from the operation of the law, because, as pointed out in our 1913 report, attention was first concentrated on the more serious defects, so that the number of fatalities might be reduced; therefore, the improvement is more accurately indicated by the reduction in the number of casualties, as shown by the following table:

	1914	1913	1912
Number of accidents	555	820	856
Decrease from previous year, per cent	32.3	4.2	....
Decrease from 1912, per cent..	35.1	....	....
Number killed	23	36	91
Decrease from previous year, per cent	36.1	60.4	....
Decrease from 1912, per cent..	74.7	....	....
Number injured	614	911	1,005
Decrease from previous year, per cent	32.6	9.3	....
Decrease from 1912, per cent..	38.9	....	....

"The data shown above is taken from the records up to July 1, 1914. A check of the first six months of the present fiscal year, that is from July 1, 1914, to January 1, 1915, in comparison with the corresponding period in the preceding year shows the following results:

"During the period ended January 1, 1914, there was a total of 349 accidents which resulted in injury, with 15 killed and 385 injured thereby. During the period ended January 1, 1915, there was a total of 253 accidents which resulted in injury, with six killed and 271 injured thereby, or a decrease of 27.5 per cent in the number of accidents, 60 per cent in the number of killed, and 30 per cent in the number injured by the failure of locomotive boilers and their appurtenances.


SECTION B-B
SECTION A-A
LONGITUDINAL SECTION ON C.L.

"Going back further and making a comparison with the corresponding period for 1912, we find that during the six months' period ended January 1, 1913, there were 470 accidents which resulted in injury, with 24 killed and 512 injured thereby. In other words, the number killed by failure of locomotive boilers and their appurtenances during the first half of our fiscal year which began on July 1, 1912, was 12½ per cent greater than for the corresponding periods in the two following fiscal years, with almost as great a decrease in the number injured and the number of accidents. Or, to state the whole matter briefly, in three years the number killed by failure of locomotive boilers and their appurtenances has been reduced from about 100 per annum to less than one-fourth that number, and the number injured from more than 1,000 per annum to less than one-half that number, with a corresponding decrease in the number of accidents."

Mr. McManamy called attention to the fact that failure of injector steam pipes, continues to be one of the most frequent causes of serious accidents, and was the only one which showed an increase in the present fiscal year over the corresponding period for the previous year. To bring out clearly the cause of these failures, he presented the following complete list of all that have occurred since July 1, 1914, and which resulted in one killed and fifteen injured. The list follows:

"Injector steam pipe failures, July 1, 1914, to March 1, 1915:

"1. Collar broke on right injector steam pipe, due to old crack in collar.

"2. Steam pipe to left injector blew off where brazed to collar.

"3. Injector steam pipe blew off; union nut broke while being tightened under pressure, due to defective nut and use of improper tools for making repairs.

"4. Threads stripped in injector steam pipe union nut while being tightened under pressure; nut too light and threads badly worn.

"5. Injector steam pipe blew off; union nut broke while being tightened under pressure.

"6. Union to left injector steam pipe blew off, fatally scalding fireman who was attempting to tighten it under pressure; spanner nut too large.

"7. Steam pipe to left injector pulled loose at turret connection; due to defective brazing and injector not properly braced.

"8. Left injector steam pipe collar broke at injector throttle connection. Old crack in flange of collar and wrapped with asbestos to stop leak.

"9. Injector steam pipe ,collar broke; defective collar.

"10. Injector steam pipe spanner nut broke while being tightened under pressure.

"11. Spanner nut on injector steam pipe broke while being tightened under pressure. Nut had been badly damaged previous to accident by use of hammer and set.

"12. Injector steam pipe pulled out of collar; improperly brazed.

"13. Spanner nut on left injector steam pipe broke while being tightened under pressure; due to use of improper tools.

"14. Injector steam pipe broke at brazing.

"15. Right injector steam pipe collar broke; defective collar.

"16. Injector steam pipe collar broke; defective collar.

"It will be noted that of these sixteen failures five were due to nuts breaking, one to threads stripping, one to nut being too large, five to collar or sleeve breaking and four to defective brazing. Each of the accidents due to the nut breaking or stripping resulted from attempting to tighten the joint without shutting off the pressure, for which the remedy is obvious, although perhaps somewhat difficult to apply. The other nine failures, four of which were due to poor brazing and five to collar or sleeve breaking, can, I believe, be prevented by extending the pipe through the collar or sleeve and flanging or beading it, thus reinforcing the collar and reducing the strain on it, as the end of the pipe itself will be solidly held in the joint; therefore, it will carry the load. If properly applied in this way, brazing is not necessary, although it can be done if desired. This method of application is at least as cheap as brazing, and defective or improper workmanship can be discovered by inspection, which is impossible with the brazed connection."

Some Characteristic Developments in Locomotive Construction.

In an address before the Central Railway Club on May 14th, Mr. S. S. Riegel, Mechanical Engineer of the Delaware, Lackawanna and Western Railroad, spoke on the "Locomotive of Recent Developments" and paid particular attention to characteristic developments in locomotive construction which he enumerated as follows:

"The combustion chamber is made more practical by the elimination of seams by autogenous welding.

"The brick arch is made more practical by sectional applications whereby it is more conveniently accessible and more easily maintained, and others are:

"The adaptation of the superheater to locomotive use.

"The more general use of the automatic fire door.

"The adaptation of the mechanical stoker to locomotive service.

"The limited use of water circulating systems which doubtlessly will come into still more general use.

"The use of special alloy metals and heat treated steels. These properly used suggest great possibilities and much good in providing more liberal strength with a liberal reduction in weight in important places. By its use we keep relatively important parts within practical limits of size and weights. The types have become so powerful that the materials of the machine must be of the best procurable and the designs must be the most suitable.

"In the combustion chamber we benefit by an increase in firebox surface and volume—the more liberal extent of direct heating surface gained is particularly beneficial, which more than offsets the considerable reduction in flue length and loss of indirect heating surface.

"In the brick arch we benefit by a better combustion and a smoke reduction by the more thorough mixing of the gases of combustion in any fuel. In the application, which normally rests on arch tubes, we have particular cause for gratification in that we have overcome the bug bear fear of water tubes in the firebox; we have learned that a proper application whereby the tubes are given a sufficient upward slant to relieve themselves from any probable steam pocketing there is positive safety, and we can safely go into a more liberal use of this circulating medium.

"In the superheater at 200 degrees of superheat and 200 lbs. pressure we benefit by an increase of 32.7 per cent in steam volume, which predicts an equal saving in fuel consumption.

"In the automatic fire door we benefit by a more liberally accurate air control and an improved degree of safety and ease in firing not had with the common door.

"In the mechanical stoker we benefit by a more liberally regular firing and an ease in firing the maximum requirements.

"In the water circulating system, if attended by a liberal supply of direct heating surface, we benefit by an equally liberal extension of steam capacity, which in suitable applications may greatly increase the steaming ability of present generators and in all cases effect a liberal reduction in the rate of combustion with an attendant fuel saving. In any case good water circulation systems mean quicker steam generation, cleaner surfaces, lower cost of boiler repairs and easier boiler cleaning, with a possible reduction of expansional and contractional strains on the boiler structure. This more positive circulation at all times is particularly beneficial at starting and stand-by periods.

"We see the limited use of power reverse mechanisms for easier handling on the larger classes, modifications in firebox constructions, changes in valve mechanism, devices for steam distribution and control during periods of operation with the throttle open and when shut off, and, doubtlessly, we will come into early use of other devices and systems to effect greater economies, as feed water heaters, condensing systems, changes in method of combustion, oiling and lubricating devices, and possibly cinder recovery systems, as by new developments and discoveries these devices can be made practical in application and free from unnecessary burden.

"In these developments there are some special cases where great individual credit is due, but more generally the result is from general collective effort. A work of common attainments. It is note-worthy to remark that many of the innovations have come only after the individual with whom they originated personally asuming the risk of their success. This is regrettable, as they should come more liberally.

"As any locomotive is limited by the capacity of its boiler, the larger locomotive of to-day is more than ever dependent upon the boiler. This is leading to the acceptance of improvements and to some new developments as in the introduction of the superheater, brick arch, combination chamber and modifications of the firebox, as illustrated by the Jacob-Shubert box and similar innovations, and a new one which with the use of modern hot water boiler washing systems predicts a liberal degree of success is a shell and tubular form of firebox developed by the Lackawanna. This is illustrated by drawings and photos Nos. 1 and 4, and consists of the introduction of two nests of water tubes located right and left in the firebox sixty-six tubes a set, having an average length of 72 inches and extending from the side sheets above the surface of the fire to the crown sheet for nearly full length of firebox. This provides a very active circulating medium and steam generating surface, bringing the total of the firebox surface up to about 830 sq. ft., 520 sq. ft. of this is provided by the water tubes. The boiler is provided with a brick arch arrangement interposed between the water circulating tubes and resting upon regular arch tubes, as illustrated by Figure 4.

"The hot water washing systems now provided in modern roundhouses, wash out more quickly and do not compel cooling down and thus prevent the deteriorating strains of frequent cooling and reheating to working temperatures. By their use we may safely come into use of these modifications to present constructions, and the one now constructed suggests one of the most logical improvements along these lines. Its introduction is an attempt to get more heat return from the fuel and from present outlook with it we are convinced our expectations will be fully realized.

"Unless we find means to burn fuel more efficiently and get a greater volume of heat energy transformed into useful work, we will soon have to handle a cumbersome volume of fuel, which will establish a limit beyond which we cannot safely go in locomotive developments. The changes we note are not mere mechanical refinements but notable developments.

"I believe I am not overstating the point in making the claim that greater progress was made in the last ten years' developments than in all of the preceding years since the first experiment in 1804. The average tractive power of an American locomotive has increased upwards of 80 per cent in this period of ten years, while the larger ones have increased more than 150 per cent and in addition to this we have brought about a considerable refinement of details."

Systematic Valve Setting on Locomotives.

MR. J. R. BRITTON, schedule inspector at the Angus Shops of the Canadian Pacific Railroad at Montreal, delivered an interesting address before the Canadian Railway Club on the occasion of its April meeting, in which he discussed "Systematic Valve Setting on Locomotives." Mr. Britton mentioned the following, as being important points to be observed in this work and suggested that same should appear on printed work report and acknowledged by valve setter over his signature:

"When taking port marks with inside admission valves, valve stem expansion and piston rod volume must be considered and allowed for.

"When placing driving wheels on rollers the height of main frames above the tops of axle boxes must be strictly observed and would be included in standard instructions, which would coincide with Drawing Office blue print dimensions.

"When finding dead centres consideration of exceeding side play in crossheads, as well as main rod slack motion allowed to slip by slightly and let go, but should be caught first time properly. Dead centres to be found with use of main rods only.

"When tightening horn binders, setting up axle box wedges, driving home cotters or adjusting main rod wedges, equalizing side play in the main driving wheels or taking the weight of drivers with a correct blocking up of spring gear with consideration for axle boxes and their journals, etc., a little concentration of mind to the work in hand is necessary. In some cases there seems to be a tendency to neglect somewhat the points just mentioned.

"Boiler expansion effect on valve gear must be allowed for when setting valves.

"When measuring lead during valve setting only it must be considered collectively, but when measured for a report same must be measured separately for each steam port.

"The reverse gear position when setting valves must be taken from standard instructions which would also contain information respecting valves being set by the full gear lead lines or specified cut-offs in the case of Walschaert gear; valve travel lines or specified cut-offs in the case of Stephenson gear for the class of engine the valves of which are being set.

"In Stephenson gear, temporary adjustment of the eccentric rods from valve travel lines is generally made and then cut-offs are taken to prove setting, and, if necessary, final adjustment is made, where as in the case of Walschaert gear, co-operation with the blacksmith, as far as the eccentric rod alteration is concerned, pays before taking the cut-offs to prove setting, even if a second alteration to eccentric rods is necessary to finally adjust cut-offs.

"It is policy for valve setters to check every change that is made to parts of valve gear requiring adjustments before and after change is made in Machine of Blacksmith Shop."

Electrical

Electrification of the Great Falls Terminal of the Chicago, Milwaukee & St. Paul Railway.

As a forerunner of the 3000-volt, main line electrification, the Chicago, Milwaukee & St. Paul Railway has recently begun electrical operation of the terminal line in the city of Great Falls, Montana. This city is at present the terminal of the new 138-mile feeder line from Lewistown, Montana, connecting with the main line transcontinental division at Harlowton, the eastern terminus of the 3000-volt electrification now under construction. The Great Falls terminal yards are located in the center of the city and are connected by a crosstown line, about four miles in length, known as the Valeria Way Line. There are about three miles of additional electrified trackage, making a total of seven miles. The terminal buildings include a large freight house, round-house, power plant and passenger station.

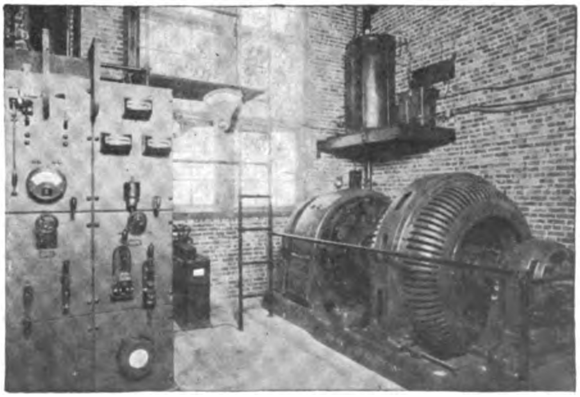
The tracks connecting the Falls yards and the terminal yard pass through the business part of the city; and it is expected that considerable benefit will be derived from the elimination of steam locomotive smoke from the center of the city, as well as a reduction in the cost of train haulage. The traffic includes the transfer of both freight and passenger trains from the Fall Yards to the terminal station, as well as switching service in the terminals.

The electrical equipment is of sufficient capacity to take care of 580-ton freight trains operating at about 9½ m. p. hr. on the maximum grades of 0.65 per cent. Electric power is supplied by the Great Falls Power Company from the hydro-electric plant at Rainbow Falls, about six miles from the substation. Energy is transmitted at 6600 volts, 3 phase, 60 cycles as generated at the power station.

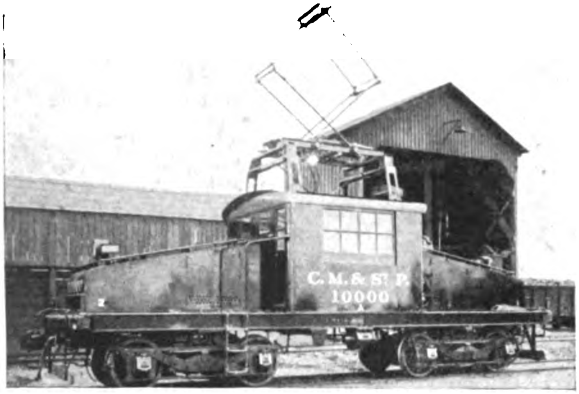
Substation.

The substation equipment is located in the power station operated by the railway company for heating the terminal buildings, and includes a 2-unit, synchronous motor-generator set with a two-panel switchboard for controlling the alternating and direct current units. The motor is rated 435 kv-a (0.8 power factor), 6600 volts, and operates at 900 r. p. m. Provision is made for starting as an induction motor through a compensator, which is operated from the alternating current panel. The generator is of the commutating pole type, rated 300 kw. at 1500 volts. The set is capable of carrying 200 per cent overload, or 900 kw. momentarily. Excitation for the a-c motor fields and for the shunt fields of the d-c generator is furnished by a 10 kw., 125 volt, direct-connected exciter.

The switchboard consists of two natural black slate panels, one controlling the synchronous motor and the other the direct current generator and feeder. The d-c panel is a standard 1500 volt type, carrying remote control, hand-operated switch and circuit breaker mounted between slate barriers at the top of the panel. The motor panel contains the usual instruments and starting and operating switches for controlling the motor.



1500-Volt Sub-Station Equipment on the Chicago, Milwaukee and St. Paul Railway.



1500-Volt Electric Locomotive, Chicago, Milwaukee and St. Paul Railway.

An aluminum cell lightning arrester is also installed in the station as a protection against electrical storms.

Locomotive.

All trains are handled by a standard, 50-ton electric locomotive of the steeple cab type, designed for slow speed freight and switching service. The running gear consists of two swivel equalized trucks, carried on semi-elliptic equalizer springs. The driving wheels are of solid rolled steel, 36 in. diameter.

The motor equipment includes four GE-207, 750 volt, box-frame, commutating pole motors insulated for 1500 volts. Each motor has a normal one hour rating of 79 hp. at 750 volts, and two motors are connected permanently in series. All motors are ventilated by a blower direct-connected to the dynamotor in the cab of the locomotive. The gear reduction is 64-17.

The control equipment is Sprague General Electric Type M, arranged for operation from either end of the cab. There are ten steps with the motors in series and seven steps in series-parallel. Control current for operating the contactors, lighting and other auxiliary circuits is furnished by a Type CDM-19, 1500-600-volt dynamotor. A multivane fan carried on an extension of the shaft furnishes air for ventilating the motors.

The current collector is a sliding pantograph, similar to that being installed on the main line 3000-volt locomotives. The slider is lifted into position by air pressure and is held against the wire by steel coil springs. Provision is made for operating at trolley heights varying from 17 to 25½ ft. above the top of the rail.

Compressed air for operating the air brakes, whistles and sanders is supplied by two CP-29, 1500 volt, motor-driven air compressors. Each of these units has a displacement of 27 cu. ft. of air per minute at 90 lb. pressure. The compressors are located in the cab of the locomotive convenient for inspection.

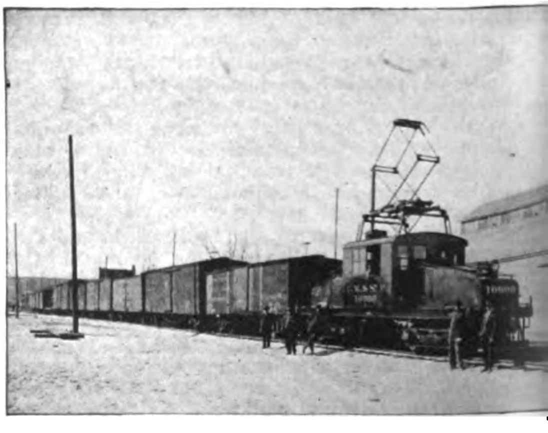
A headlight provided with a concentrated filament type Mazda lamp of about 100 c-p., is mounted on each end of the locomotive.

As a safety precaution, no trolley wire is installed inside of the round house. A connection is made in the cab of the locomotive for applying power to the locomotive through a length of special flexible cable insulated for 2400 volts. A double-throw switch in the locomotive cab allows connection to be made either to the trolley or cable circuit.

Line Construction.

The overhead line construction is of the catenary type, similar in a general way to that installed on the Butte, Anaconda & Pacific 2400-volt railroad. Both span and bracket construction are used, depending on local conditions. Poles are spaced approximately 150 feet apart on tangent track, supporting a 4-0 grooved trolley from a 3-point suspension. There is no feeder copper installed.

The work was done by the electrification department of the Chicago, Milwaukee & St. Paul Railroad, R. Beeuwkes, engineer-in-charge, under direction of Mr. C. A. Goodnow, assistant to the president. All of the electrical apparatus, including locomotive, substation equipment and line material, was furnished by the General Electric Company.



1500-Volt Electric Locomotive and Train, Chicago, Milwaukee and St. Paul Railway.

Terminal Improvements

New Coal Piers for Baltimore.

A NEW coal pier and machinery for handling export coal—facilities that will be second to none on the Atlantic seaboard—are to be provided at Canton, Baltimore, by the Pennsylvania Railroad. The installation of these improved and enlarged facilities is expected to increase the tonnage of coal exported through Baltimore.

The improvements to be made at Canton include a concrete bulkhead pier, machinery for loading coal into vessels, a coal dumper, thawing house and extensive freight yards for loaded and empty cars. It is estimated that the cost of these improvements will exceed $1,000,000. The Directors of the Pennsylvania Railroad approved the plans at their last meeting. Bids will be invited shortly for various parts of the new facilities.

The coal handling machinery on the new coal pier will be capable of loading at least 6,000 tons of coal in ten hours. The new pier will be 942 feet long and 66 feet wide. It will be possible to load coal into steamers from either side of it.

The thawing house will have a capacity of 30 cars, and the yard tributary thereto will have a capacity of 79 cars. The loaded car yard with 36 tracks will hold 620 cars, while the empty car yard will have a capacity of 139 cars, with shop car tracks to hold 28 cars additional.

The Pennsylvania Railroad is providing these improvements at Baltimore just as it is providing other facilities at other ports. The company considers it its duty to anticipate the business of the ports it serves. The new facilities at Canton are to be built because the railroad believes that the export coal business at Baltimore will show large increases in the next few years.

Pennsylvania Railroad to Increase its Grain Elevator Capacity at Philadelphia.

TO facilitate handling the largely increased grain exports from Philadelphia, the Pennsylvania Railroad Company has decided practically to double the storage capacity of its grain elevator at Girard Point. The elevator, which was completed a year ago at a cost of $1,100,000, has a capacity of nearly 1,100,000 bushels. It is planned to add additional bins having storage room for 1,000,000 bushels more. If it is found necessary, a new drier plant will also be constructed.

Work will start at once and will be pushed to completion as rapidly as possible.

Upon the completion of the new bins, Elevator "B," erected in 1882, which has a storage capacity of 350,000 bushels, will be abandoned and the grain-handling facilities operated by the Pennsylvania Railroad at Girard Point will be altogether of the most modern type.

When the new elevator was placed in operation July 1, 1914, it was expected that its capacity would be ample to meet requirements for a number of years to come. Grain exports this year, however, have been exceedingly heavy and the company's traffic department has reached the conclusion that they probably will continue to be, not only during the continuance of the European War, but for some time after peace is restored.

Up to June 1st, of the present year, there had been handled at the Girard Point Elevator 8,700,000 bushels of grain, as compared with a total of 9,400,000 for the entire year 1914 and 4,800,000 in 1910.

The increase in storage facilities will permit a reduction of about 1,000 in the number of cars which are now ordinarily held for unloading at Girard Point, while the substitution of modern facilities for Elevator "B" will make possible considerable economies in operation.

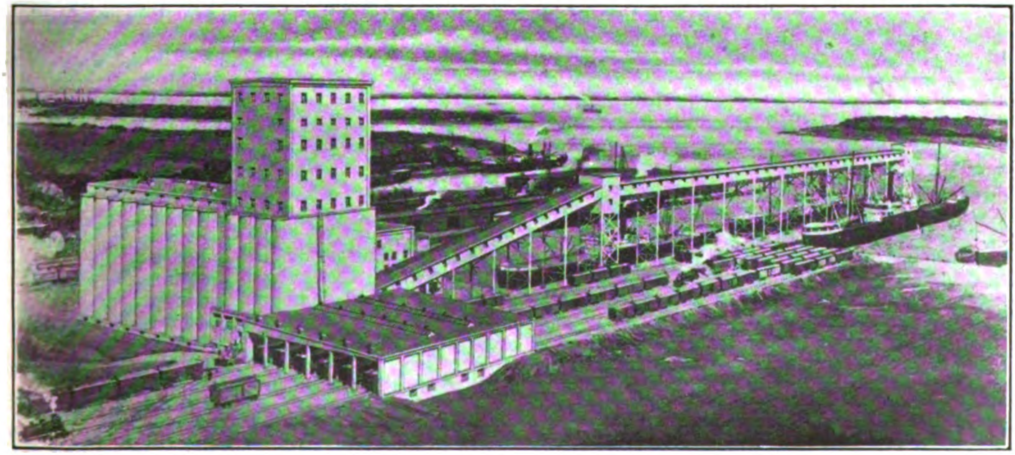
New Roundhouse at Sayre, Pa.

THE Lehigh Valley Railroad has announced the awarding of a contract for a fireproof roundhouse, containing stalls for fifty locomotives, to be erected at Sayre, Pa. The building will be of hollow tile and cement and will be the development of the latest thought in roundhouse construction. New turntables and other accessories of the roundhouse also will be built, the total cost of which is estimated at $400,000.

The contract for the construction of the building has been awarded to the Westinghouse Kerr Company, of New York City.

New Passenger Station for Somerset, Penna.

CARRYING out its intention to provide adequate passenger terminal facilities at Somerset, Pa., in keeping with the importance of that city, the Baltimore and Ohio Railroad has completed plans for erecting a passenger station which, while affording ample accommodations for travelers, will add to the attractiveness of the city. The new station, upon which work will be started at once by the



THE PENNSYLVANIA RAILROAD'S GRAIN ELEVATOR AT GIRARD POINT, WHOSE CAPACITY IS TO BE DOUBLED.

railroad's forces, will be thoroughly modern in design and of brick construction, with tapestry effect and a tile roof. The building will be 75 feet long by 30 feet wide.

The interior plan of the station calls for a general waiting room, from which room passengers can purchase tickets, check baggage and reach the women's retiring room and the men's smoking room. Ample toilet facilities for both men and women will be provided. Spacious seats will be provided in the waiting room and a bubbling fountain will enhance the general attractiveness. The station will be heated by low-pressure steam.

The station platform will be of vitrified brick with concrete curb, extending from Patriot Street to South Street. Between these streets and the station, an attractive parking effect will be created by grass plots and flower beds, while in the rear of the station will be a driveway leading from Patriot Street and South Street.

Plans Approved for New Lehigh Terminal at Buffalo.—The New York Public Service Commission has granted its approval and a certificate of public convenience and necessity for the new Lehigh terminal in Buffalo, the plans for which have already been agreed to by the railroad, the city and the terminal commission of the city.

The order of the Commission sets forth that the new line to be built will be nine-tenths of a mile long, and that it will cross no roads or streets at a grade, except by spurs or switch tracks; that it will run from Main and Scotts Streets eastwardly to a point 995 feet east of Louisiana Street, and that it will compete with existing lines. The order also recites that the present Lehigh freight and passenger terminal facilities at Scott and Washington Streets are wholly inadequate; that the existing road occupies much of Scott Street at grade; that all the necessary local negotiations have been completed and that the new terminal will provide room for the Erie, "Nickel Plate" and Wabash.

Interstate Commerce Commission

An Important Tank Car Decision.

THE Commission has rendered a decision to the effect that the Pennsylvania Railroad Company must furnish all necessary equipment both ordinary and special upon reasonable request of the Pennsylvania Paraffine Works and the Crew-Lewvic Company, refiners of crude oil for Pennsylvania

This is the second time the Commission has held that it has the power to compel a railroad to furnish shippers, upon reasonable request, with the necessary equipment. A similar order was entered some time ago upon the complaint of the Vulcan Coal and Mining Company. As in the previous decision, Commissioners Clark, Clements and Harlan dissented.

The opinion of the majority, written by Commissioner Meyer, holds that the question of what is a reasonable adequate car supply is an administrative one of which the Commission alone can take original jurisdiction. A shipper's request for cars especially suited for the transportation of his products would not be reasonable, he points out, if the cars must be prepared for shipment in a manner which is peculiarly within the technical knowledge of men connected with that industry, or if the movement of the commodity is a dangerous operation which can be safely performed only by men engaged in its production. The shipment of petroleum products in tank cars, however, does not call for such technical knowledge as would render unreasonable the complainants' request that the Pennsylvania furnish these cars. The decision further holds that from the standpoint of economy, to the shippers, to the consumer, and the railroad, tank cars are the only proper cars to use in the shipment of petroleum.

Commissioner Meyer also pointed out in his decision that one of the tests to be relied upon in determining the reasonableness of a shipper's request for cars is to be found in the volume of his shipments in the past, due allowance being made for the growth of his business. The majority of the Commission is furthermore of the opinion that all cars used by the carriers, whether they be owned by the carriers themselves or leased from private car lines or from shippers, must be distributed without discrimination. Finally, it was held that the Pennsylvania Railroad must furnish the complaining oil refiners with a sufficient number of tank cars, it being pointed out by the Commission that whatever transportation service or facility the law requires a carrier to supply, it has a right to furnish.

In the other decisions which embraced the case of the National Council of Farmers Corporation Association against the Chicago, Burlington and Quincy and other railroads, shippers of grain owning elevators at country stations in Illinois, Iowa, Minnesota, Nebraska, Kansas and North and South Dakota, alleged that the roads fail to furnish cars in suitable condition for transporting grain in bulk They asked the Commission that the roads be required either to furnish cars suitable in all respects for carrying this traffic or make an allowance to shippers for work done and materials furnished to prepare the cars for loading.

The Commission held that it is the duty of the carriers to furnish cars suitable to transport in safety the traffic which they hold themselves out to carry, upon reasonable request of the shipper, which requires repairing to prevent leakage of grain in transit. On the other hand, it is not unreasonable to expect shippers to do a limited amount of cleaning or to make minor and inexpensive repairs on such cars.

The Commission poinetd out that it would be impracticable to fix by order any allowance that should be paid shippers for labor performed or materials furnished. The Commission suggested, however, that the carriers specify in their tariffs what they will furnish in the way of materials, which must be uniform and adequate.

The Commission dismissed the complaint, holding that the practice of roads at terminal points with reference to preparing cars for loading grain in bulk is not discriminatory against the members of the complaining associations.

Express Companies Appeal for Higher Rates.

On June 9th, C. W. Stockton, representing eleven of the largest express companies in the United States, appeared before the Commission and urged that these companies be permitted to increase their rates five per cent. The arguments submitted tended to show that the zone system fixed by the Commission, about two years ago, had resulted in tremendous loss to the companies.

"During the first year in which the zone system was on trial," declared Mr. Stockton, "the revenues of the companies fell off $2,380,894. For the year preceding the Commission's order, the companies earned only $68,969 on a total business of $144,854,480. The result of a year's trial under the Commission's order brought about a reform in the practices that had grown up in the express business. It showed that the rates were discriminatory and in some cases excessive, but it also demonstrated that at the time that the application was made to the Commission for an increase rate, that no opposition was developed from any one.

"While the petitioners recognize that the new system has been of incalculable benefit to them and to the public, the year's trial shows indisputably that the revenues produced by the rates prescribed in the Commission's order are not sufficient to allow the business to be conducted successfully."

He pointed out that the revenues of the companies have decreased $13,680,810, although their business has increased by 2,225,928 shipments. During 1915, the companies handled 193,870,891 shipments as against 191,644,981 in 1914.

Notwithstanding the decrease in revenues, it was shown that the express companes had materally reduced their expeses to meet the situation. The expenses were reduced from $71,196,004, a year before the new rates became effective, to $67,083,012, in the year of the new rates, or from 37.15 cents per shipment to 34.60 cents.

The Commission was urged to put the increased rates into effect by August 1

Demurrage Bound by Shipping Point Tariff.

A new conference ruling has been issued by the Commission with respect to the tariff which shall govern the assessment of demurrage and storage charges on shipments held at point of origin, in transit and at point of destination. The new ruling reads as follows:

"Upon inquiry and to remove the confusion that exists among carriers and shippers it is held that demurrage and storage in transit are controlled by the tariff in effect when the initial movement begins; that demurrage on outbound shipments is controlled by the tariff in effect when the car is actually set for loading; that demurrage and track storage at destination are controlled by the tariff in effect when the car is actually or constructively set for unloading; and that off track storage by a carrier at destination, in its warehouse or otherwise, is controlled by the tariff in effect at the time such storage begins."

Permission Granted Erie Railroad to Keep Boat Line.

The Commission has rendered a decision permitting the Erie Railroad to continue its ownership in the Lake Keuka Navigation Company which operates four boats serving the ports located on this lake in New York and connects with the Bath and Hammondsport Railroad, a subsidiary of the Erie, at Penn Yan with the Pennsylvania and the New York Central railroads. It was held that the Erie does not compete for traffic with the boat line.

The Commission has also granted the petition of the Oregon-Washington Railroad and Navigation Company to exempt its ownership of the San Francisco and Portland Steamship Company from the provision of the Panama Canal act.

Liability of Carriers for Misrouting Claims.

A new conference ruling has been issued by the Commission regarding the adjustment of claims for damages resulting from the misrouting of freight as follows:

"It is the duty of a carrier to make delivery in accordance with routing directions. Where such routing instructions have not been followed and delivery is tendered at another terminal than that designated, it remains the duty of the delivering carrier at the terminal designated in routing instructions, either by a switch movement or by carting. In either event the additional expense involved in making such delivery must be borne entirely by the carrier responsible for the misrouting, and the reimbursement thereof to the delivering carrier may be made by the carrier at fault without a specific order of the Commission.

"In case the carrier is unable to deliver the shipment without unreasonable delay at the terminal designated, and the consignee elects to accept the shipment at the terminal where delivery has been erroneously offered, the shipper or consignee entitled to recover the damages in the sum of the difference between the expense of drayage actually incurred at a reasonable charge therefor and the expense which would have been incurred if proper delivery had been effected. Carriers admitting the justice of claims of this character should file an application with the Commission for authority to pay the same; each application to admit responsibility for the misrouting and be supported by affidavit of the agent of the carrier cognizant of the facts relied upon to justify the payment."

Data Asked for in Western Passenger Case.

A series of questions has been submitted by the Commission to the Western railroads which are asking permission to make advances in freight rates. The Commission gave notice that answers should be made to these questions at the time the hearings in the Western passenger fares case are begun in Chicago on July 6th. The questions submitted by the Commission cover the following points:

1. Separate statements for passenger and freight service expenses for the years 1913 and 1914 provided the carrier segregates these expenses.
2. The total operating, the passenger and the freight revenues for 1913 and 1914.

3. Ratio of expenses to revenues for each of the services.

4. A statement of the revenues for each year from 1907 to 1914.

5. What attempts have been made to segregate the revenues and expenses of the passenger coach service, sleeping and parlor car service, baggage service, mail service, express service, milk service and miscellaneous passenger train service?

6. A statement of the mileage revenue of the various services.

7. Revenues and expenses of the dining car service.

8. What is the profitableness of other branches of the passenger service which can be definitely segregated?

9. Detail changes in character of passenger service.

10. Is any unnecessary passenger service furnished?

11. What is the relative profitableness of the passenger services?

12. Labor costs per unit of service.

13. Fuel costs.

14. Costs of cross ties, etc.

15. Costs of other materials.

16. Cost of passenger equipment.

17. What attempt has been made to segregate cost items between the various classes of service?

18. Money spent in bettering the property.

STATE COMMISSIONS.

New York.—The Public Service Commission has closed its investigating the locomotive equipment of the Lehigh Valley. The Commission finds that much improvement had been made in the condition of the road's locomotives following the examinations of the Commission's inspectors. In a letter to E. B. Thomas, President and General Manager, informing him of the Commission's action, Commissioner Irvine says:

> "The spirit with which the railroad company has met the recommendations of the Commission is highly gratifying and the company is to be commended for the efforts it has made and is making to bring its locomotive equipment up to a high standard. The Commission is confident that such efforts will be continued."

Engine failures on the road, of which the Commission keeps close account, caused an order to be issued in February requiring the company to appear and answer. At the hearings which followed it appeared that the reports made to the Commission of engine failures had in many cases misunderstood the law and the Commission's rules, the railroad company explaining that in many cases employes had been accurate.

It also appeared that the reports of the Commission's inspectors had been generally correct. In many instances the road had already instituted measures to improve its engine equipment and the matter was held open pending a further inspection during May. It now appears that the railroad company has already complied with certain recommendations of the previous report, that it is now complying with the remainder, that the condition of the locomotive equipment has already greatly improved, and that it has entered into contracts and made changes in its methods of manning and repairing engines which, if pursued, will lead to still greater improvement and result in restoring its locomotive equipment to the condition which should be expected of a railroad of such a class.

The Up-State Public Service Commission has permitted the Long Island Railroad, in order to equalize its commuters' rate on a basis of four mills a mile, to make certain increases in the charges for 60-trip monthly and 46-trip school tickets between the western termini and points east of Flowerfield on the Wading River Branch, east of Holtsville on the main line and east of Bayport on the Montauk Division. Commissioner James O. Carr, who wrote the Commission's opinion in this case points out that the four mill rate proposed to be made effective and permitted by this order compares very favorably with rates from New York City on the New York Central, New York, New Haven & Hartford, Jersey Central, Pennsylvania, Erie, West Shore and D. L. & W. The total increase in passenger revenue which would be derived from the increase is estimated at but $5,580. The opinion says:

> "It is not disputed that the railroad company has been operating for a number of years at a loss, the deficit for the year 1914 being upwards of $900,000. There would seem to be no good reason for refusing to permit the railroad company to make a slight advance in rates, which will be accomplished by the revised tariff, and be thus enabled to slightly reduce its loss in the passenger department. The main purpose of the advance is to standardize the commutation rates to these points beyond the fifty mile zone.
>
> "No evidence was produced by the complainants to show that the proposed rate for commutation tickets would be unjust, unreasonable, unjustly discriminatory or unduly preferential."

The Up-State Public Service Commission has refused to allow the railroads to cancel their regulation calling for the supply of temporary doors or bulkheads by the carriers, or, where furnished by the shipper, the allowance of their cost up to $2.00 a car.

The order of the Commission is on an opinion by Commissioner Frank Irvine, in which he discusses at length the mechanical and economic as well as the legal phases of the case. The present regulations were put into effect by an order of this Commission in 1909. This has now expired by time limit, and when the carriers filed the proposed abrogation of these equipments and allowances complaint was made to the Commission by a number of large salt companies and by the New York State Shippers' Protective Association. The present order refuses to permit the proposed tariffs to be put into effect and continues the present arrangement.

Commissioner Irvine says that the broad question involved is whether these doors and bulkheads appertain to the car, which the carrier under common law and statute must furnish, or to the proper packing of the commodity to be shipped, which it is the duty of the shipper to supply. He finds that under the Court of

Appeals decision in a case under the previous order of the Commission they belong to the car.

LEGISLATION.

Governor Walsh Vetoes New Haven Bill.—Governor Walsh, of Massachusetts, has vetoed a bill validating certain outstanding securities of the New York, New Haven and Hartford Railroad.

In the message accompanying the veto of the validation bill the Governor declared that amendments adopted during the closing hours of the legislative session have made radical changes in the program, "changes," he said, "decidedly contrary to the public interest and that strike a death blow at the wise and settled policy of the commonwealth."

The Governor held that some relief for the New Haven Road was wise and in the public interest, and he said that if the bill should be amended so as to accord with certain recommendations of the Public Service Commission, he would gladly sign it.

Illinois Fifty-Car Train Bill.— The Illinois Senate Committee on Railroads has decided to take no action of the fifty-car train limit bill until the measure has been considered in the house.

There are now pending before the legislature of Illinois three bills designed to reduce and limit the length of freight trains operated upon railways. The bills are substantially the same in their provisions, it being proposed to make the operation of a freight train composed of more than fifty cars illegal.

Strenuous opposition to this legislation is being made by railroad officials, who contend that limiting the length of the freight trains necessarily will increase the number of trains run. This, they maintain, will increase the number of accidents in addition to arbitrarily increasing expenses.

Boston & Maine Bill Signed.—Governor Walsh of Massachusetts, has signed the bill providing for reorganization of the Boston & Maine Railroad System. Under its provisions the Federal trustees of the company may begin at once the work of rehabilitating the road, which has been threatened with a receivership. Similar legislation was enacted in Maine, but failed in the legislatures of New Hampshire and Vermont.

The act signed by Governor Walsh is a compromise measure. The Boston & Maine is authorized to purchase, or consolidate with any or all of its 29 subsidiary companies, subject to ratification of two-thirds of the stockholders of the roads affected. Should reorganization be deemed impracticable, the directors are given power to form an entirely new corporation. One of the compromise sections is that which permits the Boston & Maine to buy the Hampden Railroad by private capital at a great expense. The price is to be fixed by the Public Service Commission.

A feature of the bill is a provision forbidding the officials of the reorganized company to participate in interlocking directorates, or to sell supplies to the road through other corporations in which they may be interested.

There are also provisions relating to the issuance of securities, including one authorizing the Boston & Maine to reduce its capital stock. Nearly all such provisions require the approval of the Public Service Commission.

LEGAL.

Supreme Court Rules Against Lackawanna.—On June 21st, the Government won a victory in the unanimous opinion of the United States Supreme Court enjoining the Delaware, Lackawanna and Western Railroad from the transportation of coal under the provisions of a contract with the Delaware, Lackawanna and Western Coal Company. The coal company is a subsidiary firm controlled by the railroad company and is controlled by practically the same officers.

This contract was declared illegal, the Supreme Court reversing the 3d District United States Circuit Court, and upholding the contention of the Government that the contract between the railroad and the coal company was monopolistic, and an evasion of the commodity clause of the interstate commerce law.

The railroad is declared to have evaded the law in selling coal at the mouth of the company's mines to the D. L. and W. Coal Company, except what was needed for the operations of the railroad. The controlled coal company then sold the coal and transported it over the lines of the D. L. and W. The Lehigh Valley Railroad formed a similar company to bring itself within the commodity clause, and similar companies are in operation by other railroads engaged in the transportation of anthracite coal.

The decision sustains the validity of the commodities clause and is regarded by the Department of Justice and Interstate Commerce Commission as the most important final interpretation of that law. It is important to millions of invested capital, and it affects not only the decision of other similar cases pending in District United States Courts, but gives the Interstate Commerce Commission full authority to force the separation of railroads from the control of coal companies.

The greatest importance attaches to the decision because the Interstate Commerce Commission must accept as final the interpretation of the commodities clause, and will necessarily compel the hard coal companies controlled by railroads to dissolve their relationship with the carriers.

This is the third time the Third Circuit Court has been unanimously reversed in commodity law by the United States Supreme Court. The other cases were those of the Delaware and Hudson and the Lehigh Valley Railroads.

In the opinion of the Department of Justice, the District Court of the United States for Eastern Pennsylvania, in Philadelphia, before which is pending the case against the Reading and other companies for violation not only of the commodities clause, but the Sherman anti-trust act, will follow the decision of the Supreme Court in its decision on the commodity clause. This clause was argued last June. The defendants are:

The Philadelphia and Reading.

The Philadelphia and Reading Coal Company.

The Central Railroad of New Jersey.
The Lehigh and Wilkes-Barre Coal Company.
The Lehigh Coal and Navigation Company.
Wilmington and Northern Railroad.
Lehigh and Hudson.
Lehigh and New England.

Southern Pacific Oil Land Decision Only Preliminary.—Regarding the announcement by the Department of Justice at Washington that the Government had won its suit against the Southern Pacific in the matter of California oil lands, J. P. Blair, general counsel of the Southern Pacific made the following statement:

"While I have not received a summary of the decision, I am familiar enough with the pleadings and the status of the case to say that this is not a decision on the merits of the case. It is simply a denial of the Southern Pacific's demurrer and implies that the case will now come to trial in the Federal District Court at Los Angeles. Therefore, the burden ot proving fraud still remains with the Government. For the railway company I can say that the defense will maintain that at the time of obtaining the land grants there was no knowledge that these lands contained oil."

New York Central Commutation Rate Advances Upheld.—The Court of Appeals at Albany, New York, has sustained the increases in the commutation rates between New York City and points in Westchester County made by the New York Central Railroad in 1910.

The decision of the court nullified a determination of the Up-State Public Service Commission, which directed the company to reduce its commutation rates to the amounts charged from 1907 to 1910.

The decision is a sweeping victory for the Central and it establishes the principle that railroads and not the State shall have the right to determine the general policy to be adopted in developing traffic conditions in newly developed territory.

The Court holds that the existence of the old rates which a railroad seeks to increase does not of itself warrant the presumption that the proposed new rates are unreasonable.

Minnesota Commission Reversed.— On June 14th, the United States Supreme Court annulled as invalid an order of the Minnesota Railroad Commission requiring the Great Northern Railway to install scales for weighing live stock at Bertha, Minn.

On the same day a decision was made public holding to be constitutional an Illinois Statute requiring carriers to furnish coal cars within a reasonable time after being requested to do so.

Mail Pay Case May Be Reargued.—Chief Justice Wright, of the Supreme Court, has announced that the so-called railway mail pay divisor cases, in which the railroads of the United States are suing the Government for $35,000,000 alleged under payment, and which was submitted to the court a month ago, will be reargued next fall.

Justice McReynolds could take no part in the case because he was Attorney-General when it first came up. This left eight judges, and lawyers assumed that the order for reargument meant the Supreme bench was evenly divided.

Coal Rate Reduction Sustained.—The United States Supreme Court has affirmed a decision of the Federal District Court for the Middle District of Tennessee upholding an order of the Interstate Commerce Commission which ordered a reduction from $1 to 80c. per ton in coal rates from mines in Kentucky, Alabama and Tennessee to Nashville, over the lines of Louisville & Nashville Railroad. The railroad also appealed from an order requiring it to switch coal in Nashville from the Tennessee Central on the same terms accorded to the Nashville, Chattanooga & St. Louis Railway. The Louisville & Nashville applied to the Federal Court in Tennessee for an injunction which was denied.

Arkansas Railway Commission Temporarily Enjoined.—Temporary injunctions restraining the Arkansas Railway Commission from putting into affect its new 2c. a mile passenger rate on all roads over 85 miles long and 3c. a mile on railroads under that length have been granted by the Federal Court to the St. Louis Southwestern Railway, the St. Louis, Iron Mountain & Southern, the Chicago, Rock Island & Pacific, the Pine Bluff, Arkansas River Railway and the Warren & Ouachita Valley Railway companies.

The action of the court means that as soon as bonds to protect the State of Arkansas are approved by the court four of the railways will be permitted to put into force a 3c. passenger rate and the Warren & Ouachita Railway Co. may put into effect a 5c. a mile passenger rate. These rates will not be enforced until the settlement of the case between the State and the railways, which will be heard at St. Louis on December 11th.

Must Comply with West Virginia Fare Law.—A pre-emptory writ of mandamus has been issued by the Supreme Court of Appeals of West Virginia, against the Baltimore & Ohio Railway, ordering the company to comply with the provisions of the 2c. passenger fare law until the Public Service Commission passes upon its application for permission to increase rates.

Rate Law Held Up in Michigan.—By a decision returned on June 7th in the Federal Court at Detroit, Michigan, final judgment on the application of the Ann Arbor Railroad for a temporary injunction restraining the State from enforcing its two-cent passenger fare law was held open pending final hearing on the question. The case was argued before Circuit Judges L. E. Knappen, A. C. Denison and District Judge Clarence W. Sessions.

GENERAL NEWS NOTES.

Loyalty as an Asset.—"The Pennsylvania Railroad believes that the Company's greatest asset is the loyalty and efficiency of its men."

This is the theme of a large bulletin headed "The Greatest Asset of the Pennsylvania Railroad," which was posted to-day in all the stations on the entire Pennsylvania Railroad East of Pittsburgh. The bulletin also says:

"In normal times the Pennsylvania System has 250,000 employes. The Company pays the highest prevailing rate of wages received by railroad employes in the territory in which it operates. The policy of the Pennsylvania System is to insure that all its relations with its men shall be characterized by fairness and friendliness.

"The Pennsylvania System early realized the importance of training its own officers. This, of course, carries with it the training of its own men. To make the service attractive it is essential that employment, as far as possible, be permanent.

"The man of to-day is the officer of to-morrow. The organization is in substantial respects a civil service.

"This Company is endeavoring continually to develop its organization, to assure itself of the loyalty of its men, and to build up an efficient and economical transportation enterprise."

Reunion of Baltimore and Ohio Employes.—The thirty-fourth annual reunion of Baltimore and Ohio Railroad employes and their families will be held at Harper's Ferry, W. Va., on Thursday, July 20th, as announced by the committee which has the celebration in charge.

Anticipating the largest gathering of its employes since the reunions were inaugurated, the railroad company will operate special trains from Baltimore, one of which will go by way of Frederick, and the other by way of Washington; also from Mt. Airy, Martinsburg and Piedmont, besides which special accommodations will be provided on regular trains.

It is expected by the committee arranging the reunion that 6,000 railroad men, their families and friends will be in attendance.

TRAFFIC AND RATES.

Canal Traffic for April.—Traffic through the Canal during the month of April was not as great as during the preceding month. In April, 119 oceangoing vessels passed through the Canal, carrying an aggregate of 522,841 tons of cargo. In March 136 vessels carried 635,057 tons. The average daily transit of cargo during April was 17,428 tons, as compared with 20,485.7 tons in March.

The traffic in April, however, exceeded that in all preceding months except March. Summaries of the traffic eastbound, or from Pacific to the Atlantic, and westbound, from Atlantic to Pacific, are given herewith, in comparison with the movements during previous months:

	Eastbound.		Westbound.		Total.	
Month	Vessels.	Cargo.	Vessels.	Cargo.	Vessels.	Cargo.
Aug. ..	12	57.182	12	49.106	24	106.288
Sept. ..	30	186.776	27	135.262	57	322.038
Oct. ...	40	252.288	44	168.069	84	420.357
Nov. ..	38	242.291	54	206.510	92	448.801
Dec. ...	57	261.680	42	177.235	99	439.915
Jan. ...	54	240.875	44	208.082	98	448.957
Feb. ...	53	274.619	39	149.987	92	424.606
Mar. ..	80	417.610	56	217 447	136	635.057
April ..	60	285.457	59	237.384	119	522.841
Total	424	2.218.778	377	1.550.082	801	3.768.860

Travel to the Fair.—An idea of the manner in which the East is responding to the call of the Panama-Pacific Exposition at San Francisco, may be gained from the fact that the Southern Pacific Company, to date, has booked an average of a special train for every other day between now and the first of October; and this in addition to running its regular trains in extra sections. The company is ready for between two hundred and three hundred specials for the next quarter, a score of them having already arrived. Each consists of twelve cars and carries almost two hundred passengers. The visitors will come from all parts of the continent, according to General Passenger Agent F. E. Batturs, and will represent an immense traveling population. The specials are scheduled to carry many tourists, but by far the larger number will come on the regular trains.

Extending Time on 100-Trip Ticket.— Railroads running out of Philadelphia, in complying with the recent order of the Public Service Commission of Pennsylvania, will as soon as the necessary tariffs can be prepared, make the 100-trip ticket good for a period of one year instead of six months. The Pennsylvania Railroad has issued a statement to the effect that as it is deemed only fair that a like privilege should be accorded the holders of this form of transportation who purchased them during the time the six-months' limit was in effect, arrangements will be made to honor all tickets of this character sold after December 14th, 1914, for a period of one year irrespective of the limit of six months; this will also apply to tickets for interstate travel.

It has also been decided that local first class one-way tickets reading between points on the Pennsylvania Railroad east of Pittsburgh, Erie and Buffalo will be good in either direction, instead of from one station to another, as at present.

Imports and Exports During April.—The United States imported $160,500,000 worth of foreign merchandise during April as compared with nearly $174,000,000 worth during a similar month in 1914. As to exports, the total for the month was nearly $295,000,000 compared with but $162,000,000 for April of the preceding year. For a ten months' period, imports run about $200,000,000 below April of 1914, while the exports, by a similar comparison were nearly $200,000,000 ahead of the preceding year.

The increase in the exports for April, 1915, in the item miscellaneous to a total exceeding 9½ million dollars, arises from the exportation of horses in that month to the value of $7,088,811, and of mules to the value of $2,334,744. The total value of horses exported during the ten months ended April 30, 1915, was $47,783,848; of mules, $7,478,014, and of seeds, $3,618,459.

Analysis of the above facts for ten months shows that despite the so-called war orders, the exports of manufactures of all kinds other than foodstuffs have been less than in the similar period before the war. The normal sales of manufactures during peace were greater than those under existing war conditions. Because of this fact and of the extraordinary shrinkage of exports of crude materials, it is found that the net increase in our total exports has been wholly in foodstuffs and in that item of foodstuffs which covers those in crude condition and food animals.

On the import side it is noteworthy that there has been an absolute increase in the ten months of importations of foodstuffs partly or wholly manufactured. The larger part of the total shrinkage of total imports has been in the items of manufactures and particularly in that of manufactures ready for consumption.

Transcontinental Travel.— Transcontinental travel is the largest on record for the period but local travel is below normal throughout the West and very irregular. Some of the roads find the recent improvements fairly well maintained, while others report otherwise. Eastern lines are doing relatively well. The New York Central lines aggregate slightly exceeds that of a year ago, especially on the Big Four and Michigan Central.

Modification of Uniform Bill-of-Lading Due to Cummins Amendment.—Notices have been issued by C. C. McCain, chairman of the Uniform Bill-of-Lading Committee, calling the attention of carriers in official classification territory to the revision of Section 3 of the uniform bill-of-lading, applicable to domestic shipments, to conform to the requirements of the Cummin's amendment to the act to regulate commerce. The circular quotes the amendment in question and advises that it is contained in supplement No. 18 to Official Classification No. 42, effective June 2nd. Also that it is necessary to provide for similar revision of the "conditions" appearing on the several bills of lading, viz., "straight bill," "order bill," "shipping order," and "memorandum acknowledgment." This is to be accomplished by writing or stamping across the "conditions" of existing forms the following notation: Section 3 is amended by Supplement No. 18 to official classification No. 42, effective June 2, 1915, and all reissues thereof. The emergency is met by writing or stamping on the present bills the notation indicated.

Freight Car Surplus Shows Slight Increase.—According to reports received by the American Railway Association, the net surplus of idle freight cars on railroads of the United States and Canada on June 1, 1915, was 295,092, compared with 293,303 on May 1st, which means a comparative increase for the month of 3,789. The net surplus on June 1, 1914, was 241,802.

Changes in the total shortage of cars were unimportant, the figure standing at 203 on June 1st, as compared with 966 May 1st. On June 1st the net surplus of box cars was 123,381 against 100,463 a month before, while the June 1st net surplus of coal cars of 105,779 compared with 119,415 May 1st.

Increases in the surplus of idle cars over May 1st were chiefly in the central north and southeastern groups of roads, and in the far West. These increases were mostly in box cars. The demand for coal cars was somewhat better, but the decrease in the surplus in that class of cars was comparatively small and reflected little else than inconsequential changes in local needs.

Following is a table showing the surpluses and shortages at various recent dates:

1915.	Surplus	Shortage	Surplus
June 1	295.295	203	295.092
May 1	292.269	966	291.303
April 1	327.441	357	327.084
March 1	322.290	543	321.747
February	280.573	1.162	279.411
1914.			
November 1	172.325	2.229	170.096
October 15	154,342	2,360	151.982
October 1	133.382	2.355	131.027
October 15	138.108	2.059	136.049
September 1	165,244	1,918	163.326
August 15	174.260	2.115	172.145
August 1	198.998	2.333	196.665
July 15	238.384	1.843	236.541
July 1	220.875	1.333	219.545
June 15	232,994	660	232.334
May 31	242.572	770	241.802
May 15	239.406	764	238.642

ORGANIZATION NOTES.

A Suggestion Regarding Federal Regulation.

AT the April meeting of the Railroad Club of Pittsburgh, Mr. J. G. Code, general manager of the Wabash Pittsburgh Terminal Railroad, delivered an address on "Federal Regulation" in which he made a suggestion covering the probable extension of the authority of the Interstate Commerce Commission and the consequent increase in the amount of labor. Mr. Code pointed out that even as it now stands, the Commission handles a tremendous amount of business.

In 1913, it docketed 16,764 cases and conducted 4,101 hearings in the course of which approximately 140,000 pages of testimony were taken. To quote from Mr. Code's address:

"There has been no material change in the organization other than an increase in membership from five to seven (5 to 7) and which it is now proposed to increase to nine (9). The quality of its membership has been well maintained, so that notwithstanding many acute differences of opinion it must be conceded that we have a board composed of men ranking very high in ability, capacity, sincerity and devotion to the manifold tasks upon which they are continuously engaged.

"The reference before made to the number of cases docketed, while indicating in a manner the volume of work directly handled or reviewed by the members of the Commission, does not cover the entire work performed under the authority of the Commission by its subordinate employes or bureaus, as of locomotive inspection, accounts, statistics and tariffs.

"In working out the enforcement of the Boiler Inspection Law it has been found desirable to locate the inspectors of this division at various points throughout the country in such a manner as to insure frequent observation of the locomotive boilers and appliances. That this organization is effective most of us know. The men are "on the job" and the figures reported by the chief inspector in his 1914 annual showing 32 per cent decrease in the number of accidents, 36 per cent decrease in deaths and 32 per cent decrease in injuries, as compared with the previous year, are at least prima facie evidence of efficiency.

"The division of accounts now maintains representatives in seven (7) of our principal cities where they are in close touch with the accounting features of our principal railroad systems. These men too are "on the job" and the theory of uniform accounting is being evolved into fact.

"For valuation purposes the country has been divided into Eastern, Central, Western, Southern and Pacific divisions, with headquarters in four (4) principal cities outside of Washington.

"In the matter of hearings and investigations, however, the Commission has no fixed local representation. Its principal office is in Washington and there is provision for the conduct of hearings and investigations by one or more Commissioners in any part of the United States. This circuit riding feature was for a number of years frequently operative and it was quite the usual thing for members of the Commission to conduct hearings at various points in the territory immediately concerned in the matters at issue. But as the work increased it became exceedingly difficult for members of the Commission to absent themselves from headquarters at Washington until it is a rare occasion when a member of the Commission takes direct charge of any proceeding at an outside point. Such are almost invariably conducted by subordinate representatives of the Commission known as lawyer examiners, who report to the Commission for its review and action the evidence adduced, briefs filed, and recommendations.

"On account of the large amount of work and the probability that it will continue to increase, further addition to the membership of the Commission has been proposed, and if it were wholly practicable to sub-divide and assign to certain members a particular share of the duties, the end might be attained in this manner, which is workable, however, only in some minor matters.

"Are not the work and territory involved and interests affected now great enough to sub-divide in a more rational manner? I believe such to be the case, particularly as the development of successful regulation will require greater authority in the regulatory body coupled with a greater degree of accountability to the whole people.

"My suggestion, which I hope may be considered in the line of progress, is:

"1.—Divide the country into six (6) districts,—Eastern, Central, Southern, Southwestern, Northwestern and Pacific.

"2.—Assign to each district three (3) sub-commissioners with headquarters at convenient geographical locations in each district.

"3.—Let all hearings and investigations be conducted by these boards of sub-commissioners singly when intraterritorial, and by joint representation when interterritorial.

"4.—Forward to the Washington Commission for review and decision the record of hearing and investigation, lawyers' briefs and sub-commissioners' recommendations as is now done in cases conducted by examiners.

"5.—Relieve the Washington Commission generally of the direct conduct of hearings and investigations, except in cases of such importance as in their judgment may make it desirable for one or more of their members to sit with the Local Commissioners.

"The personnel of all commissions is of vital importance. Salary and tenure of office should be such as to command experience, ability and honest devotion to the work. One member for each of the sub-commissions may well be assigned from the Commission's corps of examiners, whose experience qualifies them to produce results. Give them a chance to settle down and get a thorough acquaintance with the transportation and business needs of a particular territory and they can do better work and more of it. One member on a sub-commission should certainly have general experience in the conduct of railway operations. A third member should be a representative of general business or shipping interests.

"The benefits of such an organization are readily manifest. Among them may be cited:

"1.—Washington Commission can give more concentrated and thorough attention to the larger problems and policies of regulation and control.

"2.—Washington Commission can serve more efficiently in advisory capacity to Congress and the President. The chairman of the Commission should be ex-officio a member of the president's official family and on the same footing as a cabinet officer. The president and the congress should have the benefit of the expert knowledge possessed by the Commission in considering proposed legislation.

"3.—Local Commissions should foster a better understanding and closer relationship and co-operation among all interests including what is extremely important, state and other local regulatory commissions.

"4.—Business can be handled with greater expedition and we will have less standing still and marking time while waiting for action.

"5.—Much loss of time and long distance traveling may be avoided.

"6.—The Commission will be 'on the job.'"

International Engineering Congress, 1915.—The Executive Secretary of the International Engineering Congress, which is to hold its meetings in San Francisco on September 16th to 25th, inclusive, has issued a booklet which contains the general program and covers in outline, the conventions of four of the National Societies supporting the International Engineering Congress, the meetings of the Congress and the excursions which have been planned to various points of engineering interest. The booklet contains a large amount of very useful and interesting information for those engineers who expect to attend this Congress and can be procured by addressing E. J. Dupuy, Executive Secretary, Foxcroft Building, San Francisco, Cal.

The Materials of Engineering Construction will receive special attention in the proceedings and discussions of the International Engineering Congress to be held in San Francisco, September 20-25 next.

The field will be treated under eighteen or more topics, covering: Timber resources; preservative methods; brick and clay products in general; life of concrete structures; aggregates for concrete; water proofing; volume changes in concrete; world's supply of iron; life of iron and steel structures; special steels; status of copper and world's supply; alloys; aluminum; testing of metals, of full sized members and of structures.

Some 25 papers are expected for this volume, prepared by authors representing five different countries. The list of authors includes many of the most eminent names in this field of engineering work throughout the world.

These papers, together with discussions contributed by leading American and foreign engineers, will be published as volume 5 of the transactions, and will be illustrated with charts, diagrams and half tones. The volume will form a most valuable acquisition to the library of all engineers and others who may be interested in these phases of engineering work.

American Railway Association's Semi-Annual Meeting.—At the recent semi-annual meeting of the American Railway Association, held in New York, A. W. Thompson, vice-president of the Baltimore & Ohio, was elected second vice-president. T. E. Clarke, assistant to the president of the Delaware, Lackawanna & Western, was re-elected to the executive committee, and A. H. Smith, president of the New York Central, was elected a new member of that committee.

B. McKeen, general manager of the Pennsylvania Lines West; A. C. Needles, general manager of the Norfolk & Western, and G. W. Taylor, general superintendent of transportation of the Southern Railway, the members of the retiring committee on nominations, were all re-elected.

President Mudge, of the Rock Island, who is president of the Association, together with all other officers of the Association, hold office until the next meeting, which is to be held in Chicago, November 17, 1915.

Much of the session was taken up in consideration of the report of the important committee on relations between railroads. A feature of this committee's report was the statement that during the fiscal year 1914, the railroads of the United States and Canada had paid out over $36,000,000 for freight loss and damage, a larger amount than ever paid before. The committee strongly urged the railroads to greater efforts in the enforcement of the rules for packing, marking and loading of freight, to request traffic associations to eliminate as far as practicable all exceptions to these rules, and to obtain the greatest possible extension of through or interline waybilling of freight. Various steps were also outlined to promote the inspection and maintenance of equipment and the safe loading of freight. The Association adopted a number of resolutions along this line.

The same committee reported various changes in details of the per diem and car service rules, some of which were adopted and some referred to the members for a letter ballot.

The committee on the safe transportation of explosives called attention to the fact that the railroads had carried over 600,000,000 pounds of dangerous explosives during 1914 with no loss of life, with only five persons injured and a property loss of only $14,106, all the injuries being due to explosives concealed in the baggage of passengers. On recommendation of the committee the Association adopted a new rule requiring that dangerous articles shipped as baggage be packed and labeled as prescribed for express shipments. The Association also acted favorably on a recommendation of an amendment to the United States Penal Code covering transportation of "other dangerous articles."

The executive committee reported that the membership now comprises 206 roads, operating 278,203 miles, an increase of two members and 190 miles of road.

The executive committee reported that a subcommittee had obtained from the Interstate Commerce Commission a postponement of the effective date of the revised rules for reporting railway accidents until the railroads had had a further opportunity to consider the same. This committee has also submitted one blank form in place of six as proposed, which blank can be used by the railroads in making reports to the several state commissions as well as to the federal commission.

The committee on maintenance reported that on January 1, 1915, 413 roads reported the ownership of 2,566,443 freight cars, of which 1,469,111 were fully equipped with safety appliances required by the United States standard promulgated by the Commerce Commission, March 13, 1911. All of these cars were fully equipped with secure grab-irons or hand-holds on the sides and ends as required by the federal law of 1893, amended in 1896 and 1903.

The same roads reported 59,019 passenger cars in service, of which 55,844 were fully up to the United States safety appliance standard; and 67,894 locomotives, of which 64,611 were up to the same standard.

EQUIPMENT.

Great Increase in Car Orders.—The steel plate business has been greatly stimulated by developments in the placing of car and ship work. Car orders in May were the largest of any month since February, 1913, and totaled 18,500 cars compared with 1150 in April, 1100 in March, 4000 in February and 2600 in January. The large increase was due to the 14,232 cars placed by the Pennsylvania System. At present, about 14,000 cars are in the market for domestic roads. Some of these inquiries are being advanced slowly, exclusive of the 20,000 pending for Russia. The Carnegie Steel Company is receiving orders for the material for freight cars to be built for the Pennsylvania Railroad. It expects to furnish over 100,000 tons of plates, shapes, bars, axles, and wrought steel wheels for these cars. The 3000 steel hopper cars to be built by the Cambria Steel Company will take close to 17,000 tons of plates and shapes for each car, or about 51,000 tons in all. The plates for the cars taken by the Pressed and Standard Steel Car Companies will be placed with Pittsburgh mills. The Chesapeake & Ohio Railroad placed 24 mallet type locomotives with the American Locomotive Company and the Western Maryland fifteen with the Lima Locomotive Corporation. The Lehigh Valley ordered the construction at its Sayre, Pa., shops of eleven additional locomotives, increasing those now building to twenty-two. The plate mills of the Carnegie Steel Company at the Homestead Steel Works and the Upper and Lower Union mills are being operated practically full.

New inquiries include eighteen passenger cars and six baggage cars for the Delaware & Hudson, 200 box cars for the Detroit, Toledo & Ironton and 650 box cars and ten cabooses for the Havana Central. The Pressed Steel Car Company has received an order for 100 box cars from the Long Island Railroad and the Central Car

& Locomotive Company, an order for 700 steel underframes and 50 caboose cars from the Chesapeake & Ohio.

The Italian Government, which last week asked for 6500 tons of ship plates for three vessels, has now opened negotiations with Eastern yards for the complete vessels. The Carnegie Steel Company has taken 9000 tons in addition to the shapes for the two boats for the Mexican Navigation Company, awarded to the Cramp yard and for a tank steamer for the Petroleum Transport Company, placed with the New York Shipbuilding Company. A lot of 250 tons for the British Isles has been closed by an Eastern mill.

Steel Rail Orders Placed by Pennsylvania.—The Pennsylvania Railroad has placed orders for 155,500 tons of steel rails. Orders for 12,000 tons have already been given, making total orders for the year 167,500 tons for the Lines East and West of Pittsburgh. The orders placed to-day call for 118,000 tons of 100-lb. rail and 37,500 tons of 125-lb. rail.

The Pennsylvania Railroad System has also placed orders for 189 all-steel passenger cars to cost approximately $2,000,000. All of these cars are to replace wooden equipment. The order is divided up among the Pressed Steel Car Company, the Standard Steel Car Company, the American Car and Foundry Company, the J. G. Brill Company, the Pullman Company and the Altoona Shops of the Pennsylvania Railroad.

CONSTRUCTION.

Completion of the Mascot and Western Railroad.—On June 15th, the last spike was driven in the new Mascot and Western Railroad, a sixteen mile line connecting the Mascot Copper Company's properties in Cochise County with the main line of the Southern Pacific.

The railway has as its terminal a ten thousand foot tramway connecting the ore bins with the working tunnels on the property. Both have been completed and will be put into operation at once. The Mascot Copper Company, of which T. N. McCauley is president, has expended over a million and a half dollars recently in improving its properties.

The ceremonies were attended by a large number of Southern Pacific officials and President William Sproul made a congratulatory speech as well as General Manager Simmons of the El Paso and Southwestern, General Superintendent Hawk of the same road, U. S. Senator H. F. Ashurst and General Manager W. S. French, of the Copper Queen Consolidated Mining Company.

New Arizona Railroad.—The Tucson, Cornelia & Gila Bend Railroad Co. has been organized to construct a railroad from Gila Bend, on the Southern Pacific, to Ajo, to give an outlet to the mines of the Calumet & Arizona Mining Co. Officers of the railroad company are: L. D. Ricketts, president; John C. Greenway, general manager; T. M. Schumacher, vice-president; Gordan Campbell, secretary; J. Curry, treasurer and assistant secretary.

The Tucson, Cornelia & Gila Bend road will be 42 miles long. Bids for construction of the line will be opened on June 10th. Ownership of the property is equally divided between the Phelps-Dodge interests and the Calumet & Arizona Mining Co.

LAND AND INDUSTRIAL.

Encouraging New Industries on the Lines of the Pennsylvania.—To acquaint manufacturing and industrial interests of the country with the advantages offered by a logical location for new industries, the freight traffic department of the Pennsylvania Railroad has prepared a folder, containing a map of the Pennsylvania Railroad Lines East of Pittsburgh, Erie and Buffalo, and giving pertinent reasons, describing the facilities and advantages.

Ten thousand copies of this folder have been furnished the representative of the Pennsylvania System at the Panama-Pacific International Exposition for distribution through that agency, and other copies are being distributed by the freight traffic department in the territory described.

The folder which bears the title "The Logical Location for Industries," says:

"The manufacturer contemplating a new plant or a change in location cannot fail of the logical conclusion that the Pennsylvania affords the ideal location:

"BECAUSE—it affords unsurpassed advantages and facilities in the number of markets at which the manufacturer's product may be directly distributed.

"BECAUSE—it reaches the greatest number of markets direct with its own rails.

"BECAUSE—it taps the best sources of supply in varied raw materials and fuel.

"BECAUSE—a prompt and wide marketing of output is the essence of manufacturing success.

"BECAUSE—the Pennsylvania System serves 52 per cent of the population of the United States.

"BECAUSE—it reaches eight of the ten largest cities in the Union directly with its lines; twenty cities, each with a population over 100,000; one hundred and fifty, each with over 10,000; and two hundred and sixty-three, each with over 5,000.

"BECAUSE—the Pennsylvania carries more than 500,000 passengers daily.

"BECAUSE—the advertising value of a location serving such a populous territory as the Pennsylvania is obviously of inestimable value."

The Pennsylvania Lines West of Pittsburgh have also issued a folder on the central west in which this region is referred to as "The Natural Work-Shop of our Country." Among other things, the folder says:

"The remarkable industrial development of this section is attributable to a combination of favorable conditions making for efficient and economical production, viz.: high grade fuels for manufacturing purposes at low cost, cheap electric power, ample water supply, a large variety of raw material procurable within the territory, extensive mineral deposits, satisfactory labor situation, advantageous living conditions, excellent climate, accessibility of markets, and unexcelled transportation facilities. These same conditions assure an even more wonderful development for the future."

PANAMA FAIR NOTES.

Pennsylvania Railroad Awarded Grand Prize.—The management of the Pennsylvania Railroad System has been informed by its representative at the Panama Pacific International Exposition, at San Francisco, that the Company has been awarded the Grand Prize, the highest honor which could be conferred upon any railroad system exhibiting at the Exposition.

In supplying information requested by the International Jury of Awards, as a guide to its judgment respecting the character and extent of the service which the Pennsylvania Railroad System renders to the Nation, the Company's reply included these facts:

The freight service rendered by the Pennsylvania System in a year is the equivalent of one ton carried 36,900,000,000 miles; the passenger service is equivalent to one person carried 4,500,000,000 miles. The System's receipts are one million dollars per day. It pays out in wages a half million dollars daily and for supplies a quarter of a million. Its employes, in normal times, number upward of 250,000 and its payrolls indirectly support 1,000,000 persons.

It was the first railroad to adopt all-steel equipment and now owns nearly 3,000 all-steel passenger cars, or one-third of the entire number in the country. The safety first movement originated with the Pennsylvania Railroad System. It employs the highest character of men and selects them with the greatest care of any railroad. It has been the leader among American railroads in double and quadruple tracking, use of automatic block signals, elimination of grade crossings, use of steel and concrete for bridges, adoption of electric motive power, substitution of steel for iron rails, stone ballasting, ditching, reduction of grades and curves, and the planning and construction of modern terminals.

Display of the Southern Pacific in Palace of Transportation.—In addition to its building and exhibit depicting in miniature the scenic wonders along its lines, the Southern Pacific Company has another instructive display in the Palace of Transportation at the Panama-Pacific Exposition. The display here is one of equipment.

On track number 9, standing on 90-pound rails on a section of Southern Pacific standard track (with glass ends giving a complete cross-section view of rails, ties and rock ballast) is locomotive "C. P. No. 1"—the C. P. Huntington—the first locomotive of the Central Pacific, the first transcontinental railroad in the United States. It was built in New Jersey in 1863 and shipped to San Francisco via Cape Horn.

On this track is also displayed a pair of Southern Pacific standard automatic electric safety block signals, one of which, equipped with a glass case, is in operation.

On the adjacent track is Southern Pacific locomotive 4043. It is the latest type of Mallet Consolidation engines, and is one of the largest of its kind in the world. Its total weight is, with tender, 625,000 pounds and its wheel base is 90 feet, 4 inches. These figures as compared with the weight of 39,000 pounds and wheel base of 21 feet, 2 inches, of the C. P. Huntington nearby, afford a striking example of the progress in modern transportation.

The Mallet operates with the cab ahead, which gives the engineer an unobstructed view of the track at all times. It is equipped with standard incandescent headlight, using latest type of Mazda lamps of 140 candlepower, which, with reflector, gives a beam of light powerful enough for the engineer to see a man on the track at a distance of a quarter of a mile, or about twice the distance required to stop a train running at forty miles an hour.

The exhibit also includes steel coach S. P. 1806, which was the first steel passenger coach built in the United States. It was designed by company engineers and built at Sacramento in 1905. Since its advent all new Southern Pacific coaches, chair cars, postal cars, baggage cars, observation cars, etc., have been built of steel.

There is also electric steel motor car C. P. 349, and electric street car with center entrance, C. P. 809. The freight car section displays a single sheathed box car and a single sheathed automobile car, and a Pacific Fruit Express car—one of the latest refrigerator cars for the preservation of fruit and perishables in transit. A postal car, exhibited by the United States Government, is shown as in order five hours out from Ogden. On another track is an exhibit of shop products.

FOREIGN RAILWAYS.

Report on Canadian Railways.—According to the annual report of the comptroller of railway statistics for Canada, the increase in operating mileage for the year ending June 30th last, was 1,491 miles, in addition to 309 miles of double track laid during the year. The capitalization of Canadian roads increased by nearly $277,000,000 during the year, and is now nearing the two billion mark, the exact figure being $1,808,820,761.

If the stocks and bonds outstanding for railways under construction are taken into account, the final aggregate of capitalization is $1,902,128,070. Dividends on stock in 1914 amounted to $30,434,601. The interest charges on all bonds were met in full.

The year was not nearly as profitable for the railways as the preceding year. Net earnings were $64,108,280, or $10,582,723 less than in 1913. There was a decrease of $13,619,154 or 5.6 per cent in gross earnings, which totalled $243,083,539. Operating expenses amounted to $178,975,259, or $3,036,431 less than the preceding year. The rapid increase in new mileage during the past few years is evidently considerably in excess of the country's demands for freight and passenger traffic, and the decrease in net earnings, coupled with the immense decrease in capitalization, is one reason for the present application to the railway commission for an increase in freight rates. Figures as to railway employes and wages show that during the year there was a further slight advance in the average rates of remuneration. The aggregate of salaries and wages paid to the 159,142 employes was $111,762,972.

The western provinces have by far the largest mileage under construction. In Alberta there are now 3.054 miles of new line surveyed, 804 miles under contract, and 1,188 completed but not yet in operation. In Saskatchewan there are 3,458 miles surveyed, 340 under contract, and 555 miles completed but not in operation. In British Columbia there are 3,577 miles surveyed, 1,234 under contract, and 698 miles completed but not in operation. In Manitoba there are 354 miles surveyed, 108 under contract and 134 completed but not in operation. In Ontario there are 532 miles of new lines surveyed, 1,841 under contract and 835 miles completed but not in operation.

New Railroad to Arctic.—The Russian Council of Ministers has sanctioned the construction of a railroad to cost 17,000,000 rubles ($8,500,000) from Kandalaska, in the province of Archangel, across the Kola peninsula to the port of Kola, on the Arctic Ocean. This new line will connect the Arctic with the railroad system of Russia and give another outlet to a Russian seaport on the north. The port of Archangel is more than 300 miles further south than Kola.

German Railroads Report Slight Effect from War.—That German railways at the close of 1914 were reporting only a slight falling off in receipts compared with the year before is one of the surprising features of figures received from Berlin by the Bureau of Railway News and Statistics, Chicago, furnishing the first details of the war's effects on the government railroads. In the face of serious curtailment in an export and import commerce which had reached $5,000,000,000 per year, there is reported for the month of December a loss of only four per cent in freight earnings, compared with the preceding year. Another unexpected feature is that military transportation, both of troops and freight, plays but a slightly more important part in the total than in times of peace.

"It was to be expected," says the report received by the Bureau, "that passenger as well as freight traffic would be strongly influenced by the war. But, despite the fact that traffic in some localities is still entirely at a standstill, and in the rest of Germany numerous and sometimes important curtailments must be borne, yet the receipts of the railroads in the more recent months happily show a steadily rising tendency, and in December reached nearly the full proportion of the year before."

The relative size of earnings from passenger and freight compared with the preceding year, beginning with the first month of the war, are given as follows:

Month	Passenger	Freight
August, 1914	56%	42%
September	48	67
October	61	77
November	74	79
December	79	96
January, 1915	82	91

Omitting Alsace-Lorraine, where transportation was especially restricted, it is stated, the passenger earnings in December would be 99 per cent and the freight earnings 98 per cent of the year before.

By months for the entire year 1914, the gross earnings from passenger and freight are reported as follows, compared with the preceding year:

FREIGHT.

Month	1914	Loss
January	$41,604,780	$923,440
February	42,732,900	*166,600
March	45,241,420	*662,120
April	43,956,220	1,092,420
May	44,834,440	*1,754,060
June	42,221,200	*266,560
July	?	?
August	18,797,240	26,751,200
September	32,234,720	14,665,560
October	40,674,200	10,360,140
November	37,449,300	8,556,100
December	40,348,140	1,944,460

PASSENGER.

January	$15,424,780	*$345,100
February	14,558,460	*818,720
March	17,997,560	1,832,600
April	21,374,780	*4,026,960
May	21,410,480	2,196,740
June	24,606,820	*2,946,440
July	?	?
August	14,772,660	11,376,400
September	11,309,760	11,252,640
October	12,345,060	7,632,660
November	12,302,220	1,635,060
December	13,875,400	3,886,540

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* Increase.

In spite of the vast movement of troops and supplies, the Prussian roads in connection with their December figures, state that only 4.54 per cent of the freight receipts represented military transportation. Against this war figure, all German railways in 1913, a year of peace, reported 4.27 per cent from this source. The Prussian roads in December reported 5.78 per cent of the passenger earnings as from military transportation. The peace ratio for all German roads in 1913 was 1.83 per cent.

BOOK REVIEWS.

Amendment to Curran's Book.—A sixteen-page amendment to "Freight Rates—Studies in Rate Construction," by John P. Curran, of the Central Freight Association, has been published, which brings the book up to date. The amendment carries the changes in the Official Classification Territory rates brought about by the "Elgin," "Springfield," "Mississippi River" and "Five Per Cent" cases. The book now carries both the old and new bases. The amendment is furnished free to all purchasers of the book, past and future.

RAILWAY PUBLICATIONS.

The Railroad Taper.—By Lee Perkins, formerly Assistant Engineer, Southern Pacific Lines; published by John Wiley and Sons, New York.

This handbook is an extension and elaboration of a compound transition curve of unusual simplicity, which was devised a number of years ago by Mr. Wm. Hood, Chief Engineer of the Southern Pacific Railroad, and used on many roads with somewhat incomplete data, usually in the form of blue prints.

The transition curve herein developed is theoretically a series of compound curves, each branch of the curve having a thirty-foot chord (in the metric system a ten-meter chord), the last branch compounding with the central circular curve, the degree of curvature of the various branches and ending with the main curve increasing in direct arithmetical progression. The various tables are to enable one to run in this series of compound curves with the ease of running in a simple curve, and from a single setting of the transit.

The primary taper tables give the various taper functions for every thirty feet of taper. That all the tapers may be available for use with all degrees and fractional degrees of main curve, avoiding the use of inappropriate taper lengths, additional tables have been furnished giving the taper functions for main curves of intermediate degree, the values having been trigonometrically interpolated.

The tapers have been calculated for metric curves for the use of the constantly increasing number of American engineers in Mexico and South America, where this taper is already extensively used.

Side Trips from Portland, Oregon.—Twenty-two side trips from Portland are described in a neat little handbook entitled "Suggestions for Side Trips from Portland" that the Southern Pacific Company is issuing without charge to those who are on sightseeing jaunts through the Pacific Northwest.

Each journey is taken up briefly and brightly. The distance from Portland and the time necessary is given in each instance, so that the tourist can plan his itineraries in such a way as to see the most of the country within whatever time he has at his disposal. Facts concerning the places along the line are given for his information and to make his outing interesting and pleasant. Two maps show where the territories he is visiting are located.

RESIGNATIONS.

Executive.

J. L. Lancaster, president, Union Railway.

Legal.

Samuel H. West, general attorney, St. Louis Southwestern Railroad.

Financial.

Frank H. Ratcliffe, cashier, Boston and Albany Railroad.

Engineering and Mechanical.

Frank W. Barnes, roadmaster, Northern Pacific Railroad.

G. E. Ellis, signal engineer, Kansas City Terminal Railway.

Frank Hartman, roadmaster, Northern Pacific Railroad.

Lee Highley, chief engineer, Pacific and Idaho Northern Railroad.

A. A. Jackson, division engineer, Baltimore & Ohio Railroad.

C. E. Smith, assistant chief engineer, Missouri, Pacific-Iron Mountain Railroad.

E. D. Tegtmeyer, master mechanic, Chicago, Rock Island and Pacific Railway.

Operation.

Harry Coughlin, trainmaster, Missouri, Oklahoma and Gulf Railroad.

E. B. Fisher, acting superintendent, Missouri, Oklahoma and Gulf Railway.

W. S. Martin, general manager, Denver and Rio Grande Railroad.

C. M. Moursund, assistant superintendent, Houston and Texas Central Railroad.

W. A. Pease, superintendent in charge of traffic and operation, Nezperce and Idaho and Lewiston, Nezperce and Eastern Railways.

G. V. Peyton, superintendent, Southern Railway.

C. L. Titus, assistant superintendent, New York, Chicago and St. Louis Railroad.

R. B. White, superintendent, Cincinnati, Hamilton and Dayton Railroad.

Traffic.

C. A. Jewett, traffic manager, Chesapeake Western Railroad.

C. S. Mitchell, claim agent, Denver and Rio Grande Railroad.

J. A. Peeler, freight claim agent and car accountant, Florida Railway.

Fred W. Sourbry, supervisor of demurrage and weighing, Illinois Central Railroad.

L. C. Thorne, general agent, Chicago, Burlington and Quincy Railroad.

T. B. Walker, district passenger agent, Atlantic Coast Line Railroad.

ELECTIONS AND APPOINTMENTS.

Executive.

John D. Cummin, assistant to vice-president, Erie, the Chicago and Erie, New York Susquehanna and Western and the New Jersey and New York Railroads. Headquarters, New York.

C. O. Jenks, member, Board of Directors and vice-president and general manager, Spokane & Inland Empire Railroad.

J. L. Lancaster, assistant to vice-president and general manager, Texas and Pacific Railway. Headquarters, New Orleans, La.

W. S. Martin, president, Union Railway. Headquarters, Memphis, Tenn.

Samuel C. Stickney, assistant to vice-president, Erie, the Chicago and Erie, the New York, Susquehanna and Western and the New Jersey and New York Railroads. Headquarters, New York.

Jason C. Tucker, assistant to vice-president, Erie, Chicago and Erie, New York, Susquehanna and Western and the New Jersey and New York Railroads. Headquarters, New York.

Legal.

Edward A. Haid, general attorney, St. Louis, Southwestern Railway. Headquarters, St. Louis, Mo.

Charles A. Murray, western tax attorney and commissioner, Northern Pacific Railway. Headquarters, Tacoma, Wash.

Financial.

E. M. Devereaux, senior assistant treasurer, Baltimore and Ohio Railroad. Headquarters, New York.

W. R. Holt, cashier, Boston and Albany Railroad. Headquarters, Boston, Mass.

D. F. Mustard, treasurer, Central Indiana Railroad. Headquarters, Anderson, Ind.

T. A. Schultz, junior assistant treasurer, Baltimore and Ohio Railroad. Headquarters, Baltimore, Md.

Accounting.

T. Cox, acting auditor, Pacific and Idaho Northern Railway. Headquarters, New Meadows, Idaho.

M. F. Harden, cost accountant, Central of Georgia Railway. Headquarters, Savannah, Ga.

Charles H. Holmes, auditor, Wheeling and Lake Erie Railroad. Headquarters, Cleveland, Ohio.

T. A. Martin, assistant auditor, Oregon Short Line Railroad. Headquarters, Salt Lake City, Utah.

Christian Peterson, auditor of freight accounts, Boston and Albany Railroad. Headquarters, Boston, Mass.

W. S. Trowbridge, auditor, Boston and Albany Railroad. Headquarters, Boston, Mass.

W. J. Turck, assistant auditor, Boston and Albany Railroad. Headquarters, Boston, Mass.

C. J. Wade, car accountant, New Orleans, Gt. Northern Railroad.

Engineering and Mechanical.

Henry Bartlett, chief mechanical engineer, Boston and Maine Railroad. Headquarters, Boston, Mass.

William Brandt, general foreman, New York, Chicago and St. Louis Railroad. Headquarters, Conneaut, Ohio.

C. E. Brooks, acting superintendent of motive power, Grand Trunk Railway. Headquarters, Transcona, Man.

H. R. Carpenter, chief engineer, Missouri Pacific and St. Louis Iron Mountain and Southern Railways.

John J. Desmond, roadmaster, Mississippi Division, Illinois Central Railroad. Headquarters, Water Valley, Miss.

A. F. Dorley, engineer of maintenance of way, Eastern District, Missouri Pacific-Iron Mountain System. Headquarters, St. Louis, Mo.

J. Emerson, roadmaster, Chicago, Burlington and Quincy Railroad. Headquarters, Beardstown, Ill.

J. D. Farrington, roadmaster and assistant trainmaster, Chicago, Burlington and Quincy Railroad. Headquarters, Aurora, Ill.

John H. Hayes, roadmaster, Northern Pacific Railway. Headquarters, Moscow, Idaho.

W. H. Keller, master mechanic, Indiana Division, Baltimore and Ohio Southwestern Railroad. Headquarters, Cincinnati, Ohio.

E. Keough, assistant engineer of maintenance of way, Canadian Pacific Railway. Headquarters, Montreal, Que.

T. L. Landers, resident engineer, Intercolonial Railroad. Headquarters, Truro, Nova Scotia.

John E. Lloyd, division engineer, Baltimore & Ohio Railroad. Headquarters, Cleveland, Ohio.

P. H. McFadden, roadmaster, First District, Oregon-Washington Railroad and Navigation Company. Headquarters, Spokane, Wash.

E. W. McGarvey, assistant supervisor, Philadelphia Division, Eastern Pennsylvania Grand Division, Pennsylvania Railroad.

M. B. McPartland, master mechanic, Nebraska Division, Chicago, Rock Island and Pacific Ry. Headquarters, Goodland, Kans.

A. McTavish, locomotive foreman, Grand Trunk Pacific Railroad. Headquarters, Biggar, Sask.

Frank A. Merrill, engineer, maintenance of way, Boston and Maine Railroad. Headquarters, Boston, Mass.

J. S. Miller, roadmaster, Chicago, Burlington and Quincy Railroad. Headquarters, Council Bluffs, Iowa.

B. B. Milner, engineer, motive power, New York Central Railroad. Headquarters, New York.

J. A. Mitchell, general foreman, Grand Trunk Pacific Railroad. Headquarters, Transcona, Man.

R. S. Mounce, general foreman car repairs, Erie Railroad. Headquarters, Jersey City, New Jersey.

O. P. Reece, assistant engineer of motive power, Pennsylvania Lines West of Pittsburgh.

G. E. Sisco, master mechanic, Pennsylvania Lines West of Pittsburgh. Headquarters, Toledo, Ohio.

Christopher T. Sponsel, roadmaster, Northern Pacific Railway. Headquarters, Garrison, Mont.

Operation.

A. J. Alexander, assistant superintendent, Horace District, Missouri, Pacific-Iron Mountain System. Headquarters, Pueblo, Colo.

P. Alquist, general superintendent, car department, Missouri, Kansas and Texas Railroad. Headquarters, Dennison, Texas.

W. R. Armstrong, general manager and chief engineer, Salt Lake and Utah Railroad. Headquarters, Salt Lake City, Utah.

William A. Baldwin, general superintendent, Lines East of Buffalo, Erie Railroad. Headquarters, New York.

O. C. Bishop, superintendent of sleeping and dining cars and news service, Canadian Northern Railroad. Headquarters, Winnipeg, Man.

J. A. Blair, superintendent of dining cars, Spokane, Portland and Seattle Railroad, the Oregon Trunk, the Oregon Electric, the United Railways and the Spokane and Inland Empire railways. Headquarters, Portland, Oregon.

J. A. Bolich, trainmaster, Winston-Salem Division, Southern Railway. Headquarters, Winston-Salem, N. C.

J. D. Booth, acting superintendent, Missouri, Oklahoma and Gulf Railway. Headquarters, Muskogee, Okla.

F. P. Brady, general superintendent, National Transcontinental Railway. Headquarters, Cochrane, Ont.

G. W. Broom, assistant to superintendent and chief dispatcher, Central Vermont Railroad. Headquarters, St. Albans, Vt.

R. W. Brown, trainmaster, Cincinnati, Hamilton and Dayton Railroad. Headquarters, Dayton, Ohio.

J. M. Cameron, general superintendent, Canadian Pacific Railway. Headquarters, Winnipeg, Man.

E. A. Dewey, trainmaster, Missouri, Oklahoma and Gulf Railway. Headquarters, Muskogee, Okla.

John B. Dickson, general superintendent, Lines West of Buffalo, Erie Railroad. Headquarters, Cleveland, Ohio.

John Dwyer, superintendent, maintenance of way, Norfolk, Southern Railway. Headquarters, Norfolk, Va.

R. G. Edwards, assistant superintendent, District No. 2, Canadian Pacific Company. Headquarters, Montreal, Que.

E. E. Eichar, trainmaster, Third Division, Denver and Rio Grande Railroad. Headquarters, Gunnison, Colo.

J. Flynn, assistant superintendent, Second Division, Denver and Rio Grande Railroad. Headquarters, Salida, Colo.

J. M. Grieve, assistant superintendent of sleeping and dining cars and news service, Canadian Northern Railroad. Headquarters, Winnipeg, Man.

G. W. Groom, assistant to superintendent and chief dispatcher, Central Vermont Railroad. Headquarters, St. Albans, Vt.

W. H. Hall, general superintendent of telegraph, Missouri, Kansas and Texas Railway. Headquarters, Denison, Texas.

W. S. Hanley, superintendent, New Orleans Great Northern Railroad. Headquarters, Bogalusa, La.

C. A. Hawkins, superintendent in charge of traffic and operation, Nezperce and Idaho and Lewiston, Nezperce and Eastern Railways. Headquarters, Lewiston, Idaho.

J. Hickman, superintendent of telegraph, Missouri, Kansas and Texas Railroad. Headquarters, Parsons, Kansas.

M. V. Hynes, superintendent, Indianapolis Division, Cincinnati, Hamilton and Dayton Railroad. Headquarters, Indianapolis, Ind.

A. A. Iams, superintendent, Cincinnati, Hamilton and Dayton Railway. Headquarters, Dayton, Ohio.

T. E. Jamison, trainmaster, Chicago Division, Baltimore and Ohio Railroad. Headquarters, Garrett, Ind.

George W. Kirtley, general superintendent of transportation, Erie Railroad. Headquarters, New York.

Frederic B. Lincoln, general manager, Erie Lines East of Buffalo and Salamanca. Headquarters, New York.

C. W. Lott, assistant superintendent, District No. 5, Canadian Pacific Railway. Headquarters, Smith's Falls, Ont.

J. K. McNeillie, general superintendent, Intercolonial, the Prince Edward Island and the National Transcontinental east of Quebec. Headquarters, Moncton, N. B.

J. E. Maun, superintendent, Northern Division, Central Vermont Railway. Headquarters, St. Albans, Vt.

William Maxwell, superintendent, Spartanburg Division, Southern Railway. Headquarters, Columbia, S. C.

E. J. Melrose, assistant superintendent of District No. 3, Canadian Pacific Company. Headquarters, Smith's Falls, Ont.

R. S. Mounce, general foreman, car repairs, Erie Railroad. Headquarters, Jersey City, N. J.

M. A. Mulligan, superintendent, New York Division, Lehigh Valley Railroad. Headquarters, Jersey City, N. J.

James Russel, general manager, Denver & Rio Grande Railroad. Headquarters, Denver, Colo.

E. W. Scheer, superintendent, Baltimore and Ohio Southwestern Railroad. Headquarters, Seymour, Ind.

A. C. Showalter, assistant superintendent, Buffalo Division, New York, Chicago and St. Louis Railroad. Headquarters, Conneaut, Ohio.

J. E. Spaulding, superintendent, Central Indiana Railroad. Headquarters, Anderson, Ind.

C. N. Staples, assistant superintendent, Houston and Texas Central Railroad. Headquarters, Ennis, Texas.

A. E. Stevens, general superintendent, Eastern Division, Canadian Pacific Company. Headquarters, Montreal, Que.

William Walker, superintendent, car department, Missouri, Kansas and Texas Railway. Headquarters, Dennison, Texas.

J. W. Wassum, superintendent, Columbia Division, Southern Railway. Headquarters, Columbia, S. C.

A. B. White, superintendent, Middle and Pittsburgh Divisions, Buffalo, Rochester and Pittsburgh Railroad. Headquarters, DuBois, Pa.

D. E. Wilcox, assistant superintendent, Denver and Rio Grande Railroad. Headquarters, Salt Lake City, Utah.

Traffic.

W. P. Bass, commercial agent, Detroit, Toledo and Ironton Railroad. Headquarters, Ironton, Ohio.

P. B. Boddridge, commercial agent, Texas and Pacific Railroad. Headquarters, Kansas City, Mo.

Adam Darling, claim agent, Denver and Rio Grande Railroad and the Rio Grande Southern Railroad. Headquarters, Denver, Colo.

George F. DeMurray, general agent, Chicago, Burlington and Quincy Railroad. Headquarters, Sterling, Ill.

O. E. Duggan, commercial agent, Texas and Pacific Railroad. Headquarters, Birmingham, Ala.

B. F. Fuller, traveling passenger agent, Atlantic Coast Line Railroad. Headquarters, Montgomery, Ala.

J. C. Hagerty, general agent, Baltimore and Ohio Southwestern Railroad. Headquarters, Cincinnati, Ohio.

Arthur T. Jackson, district passenger agent, Union Pacific System. Headquarters, Los Angeles, Cal.

H. A. Laird, division freight and passenger agent, National Transcontinental Railway. Headquarters, Cochrane, Ont.

F. B. McIlvaine, district freight claim agent, Michigan Central Railroad. Headquarters, Chicago, Ill.

John C. Maus, supervisor of demurrage and weighing, Illinois Central Railroad. Headquarters, Chicago, Ill.

J. H. Myler, commercial agent, New York Central Railroad. Headquarters, Pittsburgh, Pa.

E. R. Place, general agent, passenger department, Denver and Rio Grande, Western Pacific, Missouri Pacific and the St. Louis, Iron Mountain and Southern Railways. Headquarters, Boise, Idaho.

Frank D. Powell, commercial agent, Canadian Southern Lines, of the Michigan Central Railroad. Headquarters, Chicago, Ill.

S. S. Russell, special agent, auditing department, Central Vermont Railroad. Headquarters, St. Albans, Vt.

James D. Schaeffer, traveling passenger agent, Chicago, Milwaukee and St. Paul Railway. Headquarters, Buffalo, N. Y.

F. R. Smalley, district passenger agent, Minneapolis, St. Paul and Sault Ste. Marie Railway. Headquarters, Duluth, Minn.

J. G. Smith, general baggage agent, Missouri, Kansas and Texas Railroad. Headquarters, Dallas, Texas.

W. O. Sydnor, Jr., traveling freight agent, Detroit, Toledo and Ironton Railroad. Headquarters, Ironton, Ohio.

H. H. Taylor, commercial agent, Texas and Pacific Railroad. Headquarters, Chicago, Ill.

R. G. Thompson, district representative, Chicago territory, Canadian Pacific Railway. Headquarters, Chicago, Ill.

M. E. Thornton, office superintendent of agencies, Canadian Pacific Railway. Headquarters, Calgary, Alta.

M. E. Ward, commercial agent, Ft. Smith & Western Railroad. Headquarters, Ft. Smith, Ark.

F. C. West, district passenger agent, Atlantic Coast Line Railroad. Headquarters, Augusta, Ga.

C. B. Williamson, traffic manager, Chesapeake Western Railroad. Headquarters, Harrisonburg, Va.

Purchasing.

A. E. Hutchinson, general purchasing agent, Oregon Short Line. Headquarters, Salt Lake City, Utah.

Walter R. Owen, assistant general purchasing agent, Chicago, Rock Island and Pacific Railway. Headquarters, Chicago, Ill.

G. H. Robinson, general storekeeper, Oregon Short Line Railroad. Headquarters, Pocatello, Idaho.

OBITUARY.

Edward Harding Barnes, chief engineer of the Grand Rapids & Indiana, at Grand Rapids, Mich., died on May 15th, at his home in that city.

Charles H. Bronson, formerly from April, 1890, to 1904, auditor of the Pittsburgh & Lake Erie, died on May 3rd, at Cleveland, Ohio, at the age of 70.

E. N. Brown, assistant superintendent of the Baltimore & Ohio Southwestern, at Chillicothe, Ohio, died in that city, May 25th, at the age of 46 years.

H. W. Cowan, chief engineer of the Colorado & Southern, whose death on May 29th, at his home in Denver, Col., has already been announced, was born on April 27, 1862, at Bath, Me. After graduating from the Worcester Polytechnic Institute he entered railway service, and from 1883 to 1886 he was topographer and draftsman for the Winona, Alma & Northern. From June, 1886, to September, 1888, he was draftsman and topographer for the Colorado Railway, and from September, 1888, to February, 1894, was assistant engineer of the Colorado division of the Union Pacific. He was then appointed resident engineer of the Union Pacific, Denver & Gulf and the Denver, Leadville & Gunnison railways, at Denver, Colo. In January, 1898, he was appointed chief engineer of the Colorado & Southern, successor to the Union Pacific, Denver & Gulf and Denver, Leadville & Gunnison Railways, and in January, 1907, was also appointed consulting engineer of the Colorado & Southern, and was later appointed chief engineer.

P. Fox, general foreman of car repairs of the Erie at Jersey City, N. J., died on May 10th.

William Pond Harris, formerly until 1898, superintendent of the Plant System, now a part of the Atlantic Coast Line, died on April 24th, at his home in Johnson City, Tenn., at the age of 69. He began railway work in the operating department, and served consecutively on the Delaware, Lackawanna & Western; then as superintendent of the Chesapeake & Ohio; the Louisville & Nashville; Baltimore & Ohio; Atchison Topeka & Santa Fe; Charleston, Cincinnati & Chicago, now a part of the Carolina, Clinchfield & Ohio and the Plant System, until 1898, and since that time he had been out of railway work.

D. C. Herschiser, trainmaster of the Western Maryland Railway at Cumberland, Md., died in that city, May 13th, aged 42 years.

H. E. Howard, formerly and for many years an officer of the Connecticut River and later of its successor, the Boston & Maine, died at his home in Springfield, Mass., May 24th, at the age of 77. He was general freight agent of the Connecticut River from 1870 until 1891, when he was promoted to the position of general traffic manager of the company, including its northern connections. In 1893, on the lease of the road to the Boston & Maine, he was made superintendent, and a year later became superintendent of car service for the Boston & Maine System. He held this position until 1908, when he retired from railroad service.

General Thomas H. Hubbard, chairman of the executive committee of the Toledo, St. Louis & Western, whose death on May 19th, at his home in New York, was noted in these columns last week, was born at Hallowell, Me., on December 20, 1838. He graduated from Bowdoin College, attended Albany Law School, and was admitted to the bar in 1860. He served with distinction in the Civil War, and subsequently became a prominent railroad corporation lawyer in New York. He was vice-president and a director of the Southern Pacific from 1896, to 1900; president of the Mexican International from 1897, to 1901, also of the Houston and Texas Central from 1894 to 1901, and later served as president of the Guatemala Central, director and chairman of the executive committee of the Chicago & Alton, and the Toledo, St. Louis & Western, and also of the American Light & Traction Company. He had been a director and member of the executive committee of the Wabash Railroad, and the Western Union Telegraph Company, also a director of the Philippine Railway Company and of a number of other corporations. A few days before his death he again became a director of the Southern Pacific. He was a trustee of Bowdoin College and made it large gifts.

John G. McCullough, vice-president of the Chicago & Erie, died on May 29th, at his home in New York. He was born in 1835, at Newark, Del. In December, 1874, he became vice-president of the Panama Railroad, and subsequently became president of the same road. In 1873 and 1874 he served as a director of the Central Vermont. From 1877, to 1883, he was vice-president of the Bennington & Rutland, and later became president of that road. From November, 1884, for several years he served also as president pro tem. of the New York, Lake Erie & Western, and from September, 1890, for over ten years was also president of the Chicago & Erie. From July, 1893 to 1896, he was also receiver of the New York, Lake Erie & Western, and later became vice-president of the Tioga Railroad. At the time of his death he was vice-president of the Chicago & Erie, now a part of the Erie.

P. P. Mirtz, assistant engineer, mechanical department, of the New York Central, died suddenly on May 11th, at his home in New York.

R. F. Morkill, signal engineer of the Grand Trunk Railway, has been killed in the war in Belgium. Mr. Morkill was on leave of absence, serving with the Canadian contingent.

Fred Stark Pearson, president of the Mexico Northwestern Railway, and interested in numerous projects in this country, in Mexico, and in Spain, was one of the victims of the Lusitania disaster. Dr. Pearson was born at Lowell, Mass., July 3rd, 1861. He was graduated from Tufts College in 1883 and taught at Massachusetts Institute of Technology and then at Tufts until 1883. He was a mining engineer in the United States and Brazil for two years. In 1886 he became identified with electric traction interests. From 1894 to 1899 he was chief engineer of the Metropolitan Street Railway of New York and since served that company in consultation. Besides his mining and other interests he was also president of the Barcelona Traction, Light & Power Co., Ltd., of Spain, the Mexico Tramways Co., Mexican Light & Power Co., and the Rio de Janeiro Tramway, Light & Power Co.

Casper Phillips, master mechanic of the New Orleans & Northeastern Railroad and Alabama & Vicksburg Railway, at Meridian, Miss., died in that city, May 29th, aged 60 years.

Oliver Snyder, division superintendent of the Gulf, Colorado & Santa Fe Railway, at Cleburne, Texas, died at his home in that city, June 6th, aged 46 years.

M. E. Sherwood, master mechanic of the Michigan Central Railroad at Jackson, Mich., was shot and killed June 4th. He was riding through Keeley Park in Jackson in his automobile, when the shot was accidentally fired by a child. Mr. Sherwood was 46 years old and had been in the service of the Michigan Central for nearly 25 years.

John Sullivan, roadmaster of the Chicago, Burlington & Quincy, at Galesburg, Ill., died at Galesburg on May 20th, at the age of 73 years. He had been employed by the Burlington for 58 years, starting in 1857 as a section hand, and had been roadmaster of a single main line division, the Aurora Division, since 1869.

N. A. Waldron, general storekeeper of the Missouri Kansas & Texas Railway, with headquarters at Parsons, Kan., died in St. Luke's Hospital, St. Louis, Mo., May 31st. Mr. Waldron suffered a paralytic stroke a few weeks ago and was taken to St. Louis for treatment.

W. C. Walstrum, superintendent of telegraph of the Norfolk & Western at Roanoke, Va., died on May 8th, at the age of 60.

Justice and Freedom for Industry*

By WILLIAM HOWARD TAFT.

IT is easy to fix one's attention on what seems to be an abuse and to attack it with such an emphasis as to make it stand out in a bold and bald and naked form, without the proper shading and without a statement of mitigating circumstances. What one says may be true in letter and yet because of the failure to note the other side may be unjust and false in spirit and effect. On any issue which affects the vital interests of classes in a community, we must expect such partisan statements, and we must realize the difficulty of getting at a truthful and judicial summing up of the controversy and a just conclusion. Not only is the problem of reaching the truth a difficult one in itself, but it is also attended by embarrassment that in such a heated controversy the one who seeks the median line and to hold the balance even, is generally condemned by both sides for his pains.

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*An address delivered at the Convention Banquet of the National Association of Manufacturers, Waldorf Astoria, New York City, May 26, 1915.

COMPETITION ESSENTIAL TO PROGRESS.

This general observation as to all controversies finds a most noteworthy illustration in the continuing issue between capital and labor. Our present society with the institutions of personal freedom, civil liberty, and private property finds its moving and basic spirit in competition. Without this we would make no progress. Without this the prudential virtues, industry, effort, self-restraint would all abate and retrogression would take the place of progress. Between those who control capital there must be competition in some form, or its use will cease to be directed in the spirit of wisdom, energy and progressive ingenuity. The spirit of competition in the reduction of the cost of production has led to great combinations of the small contributions of capital from the many who have saved, in a reservoir to be controlled by the comparatively few leaders. This principle of combination has given great power to the leaders and at times they have been intoxicated with the lust for greater power and an absolute control of capital in different lines of industry and the elimination of competition. This is an excessive use of their power and needs curbing, and the anti-trust law was enacted to prevent this abuse. There can be an excessive spirit of competition and that rule or ruin policy which is both suicidal for those who initiate it and destructive for those against whom it is directed. It can only be modified by the common sense that prompts self-preservation and the principle of live and let live. Then there is a competition between individuals of the labor class. This persists no matter how iron the rules of the labor unions. The terms of employment are ultimately fixed by the law of supply and demand and by the competition between laborers. Organized labor does not generally include all of those engaged in labor even in skilled trades. Then in the fixing of the union wages and within the union itself, the spirit of competition between members has a necessary influence.

Then there is competition between the classes. It is a normal condition that there should be an ever-recurring issue between those who pay wages and those who earn them as to what should be the just share of labor in the joint product of labor and capital. This controversy must be kept within the limits of moderation, to be fixed by rules of law and by the good sense of both sides, prompted by the consciousness that both capitalists and wage earners are in the same boat with the whole community and that continued injustice to one class is certain to injure the whole of society. This controversy must recur even when the beneficial co-operative system of dividend sharing prevails.

This issue affects so closely the interests of those engaged in it, we must expect an exhibition of intense partisanship, and we must expect also a pressing upon the limits of law and common sense in the effort of each side to secure what it deems its right.

PURPOSES OF THE CLAYTON AND TRADE COMMISSION ACTS.

A consideration of the Clayton Act and the Trade Commission Act, which are really to be taken together, and a discussion of their legal effect and of their wisdom and expediency, necessarily involve the issues growing out of this competition between capitalists and its effect upon the public weal, of the competition between laborers and its effect upon the freedom and effectiveness of labor and the better condition of the individual laborer, and of the struggle between capital and labor in the effort to settle the share of their joint product. What I would like to do to-night is to give as nearly a judicial expression upon these issues as one can who is neither a capitalist nor a wage earner, and who thinks he has at heart the welfare of society. As I have already indicated, an attempt to do this will arouse criticism by those engaged in the management of capital, that a man who has not been in business has no practical knowledge making valuable his views of laws concerning business. The criticism by the leaders of wage earners will be that it is the expression of one affected by class consciousness, though just exactly what class it is of which one is conscious may be doubtful. We usually find in such heated denunciation that class consciousness is intended to describe an absence of the partisan spirit which the denouncer has. While the attitude of hostility of both sides toward a judicial expression may weaken its influence, at the same time, it may be significant of its justice.

The first thing to be noticed with respect to the Clayton Act and the Trade Commission Act is that it reaffirms the anti-trust act. Section 7 of that act in denouncing certain acts intended to lessen competition contains the proviso that:

"Nothing in this section shall be held or construed to authorize or make lawful anything heretofore prohibited or made illegal by the anti-trust laws, nor to exempt any person from the penal provisions thereof or the civil remedies therein provided."

And Section 11 of the Trade Commission Act is:

"Nothing contained in this act shall be construed to prevent or interfere with the enforcement of the provisions of the anti-trust acts or the acts to regulate commerce, nor shall anything contained in the act be construed to alter, modify or repeal the said anti-trust acts or the acts to regulate commerce or any part or parts thereof."

Now there is a studied effort, by gentlemen who are defendants in pending suits under the anti-trust act, to discredit the beneficial effect of that act, to hold it up to criticism, to make it responsible for depression in business, and to attack it as an archaic effort to prevent material progress. The arguments that these gentlemen advance, and the plea for co-operation instead of competition, are nothing but a euphemistic defense of bringing our whole industrial system again under the monopolistic control of a few managers, with the inevitable result that we must regulate this monopoly by national direction, involving price-fixing and as complete control of all business as we now have over interstate railroads. To this I am utterly opposed. While I concede that the public nature of the function which the railroads of the country perform involves in some degree a necessary monopoly under public franchise, and therefore requires regulation, we must all concede that the duty assumed by the Government and discharged by the Interstate Commerce Commission is one that is imperfectly performed, and frequently results in injustice, and an injurious constraint. If now we were to extend such Governmental control to all the lines of business industry which are not dependent upon public franchise and attempt to regulate in minute detail that business, and fix prices, our machinery would break down, because of the immense field to be covered and the inherent difficulty of substituting the arbitrary judgment of men for the inexorable operation of economic law. The anti-trust law, as it is enforced to-day, is the result of a construction of 20 years by a wise, patriotic and impartial tribunal, the greatest in the world, a tribunal which has had the benefit of the experience of 20 years in the life of the law, and which gives, in its construction of the law, proper weight to the effect of dominant and well settled public opinion demanding its enactment and stimulating its enforcement. An agitation to secure its repeal and a return to the conditions of industry under monopolistic control before it was made effective by the construction of the courts, is utterly futile and will meet no success with any Congress that represents the people in its action; and certainly not at the instance of those whose conduct of their business has invoked Governmental action because of their alleged violation of the law's restrictions. It is not too much to say, therefore, that the Clayton Act and the Trade Commission Act, in so far as they confirm the anti-trust act, are only expressing the opinion of all but comparatively few.

LEGISLATIVE HOSTILITY TO BUSINESS SUCCESS.

My objections to the Clayton Act and the Trade Commission Act are that their enactment with such a blare of trumpets and avowals of hostility to capital in general, with little discrimination, had a strong tendency to frighten those whose judgment determines the amount of new investments of capital, and thus to restrict the normal expansion in our business due to the reinvestment of earnings. It is a mistake to suppose that capital is all owned by rich men. It is made up chiefly of the savings that flow into the great reservoirs of savings banks, life insurance companies, trust companies, into the stock of railroad enterprises and industrial corporations; and the very large percentage of the total capital invested is owned by wage earners, earners of salaries, and men of small or moderate means who use these agencies to secure profit for their savings and a reward for their prudence and self-restraint. It is true, however, that in giving effect to the principle of combination the control of these reservoirs of capital and the reinvestment of its profits on invested capital, are more or less subject to the judgment of the comparatively few to whose custody and management the reservoirs are entrusted. The aftermath of a crusade and great reform in our political and business condition and a rescue of the country from the dangers of plutocracy is excessive hostility in legislative expression to success in business and to those who control capital. The hostility has been manifested in all sorts of restrictions, unwise and useless, and the enactment of further restraints in the Clayton Act and in the Trade Commission Act were much more detrimental to the business interests of the country in frightening investment than in any real effect after they shall have passed the scrutiny of the courts and their essence has been disclosed in the test of actual litigation. There was in their enactment a political motive that prompted the claim on the part of those who voted for them that they were much more radical than they are. A close examination of the Clayton Act shows that while it divides up the offenses denounced by the anti-trust act, into a variety of details, it really adds but little in its practical restriction of methods of conducting business and the freedom of combination and the freedom of competition. It adds a useful provision to the law in denouncing as a Federal crime the looting of interstate railroads by reckless promoting directors charged with the duty of honest, careful management in the interests of their stockholders and the public, offenses which had theretofore been denounced only by State laws. The bringing of this offense within Federal jurisdiction, because of the greater certainty of enforcement in the Federal courts, will make less likely such mismanagement as that which has been disclosed to the country in a number of our great railway corporations.

TRADE COMMISSION ACT ATTEMPTS THE IMPOSSIBLE.

In the Trade Commission Act a Federal executive tribunal has been created whose duty it is to keep under detailed observation the entire industrial and commercial business of the country, other than that of interstate railroads, and wherever it detects unfair methods of competition, to summon the perpetrators before it on charges, to give a hearing to make a finding of facts and conclusions of law, and to issue an order to correct such methods, and then, if their conclusions are disputed and their order is disobeyed, to submit the record to the courts for a consideration of the legality of the order. There are two thoughts that occur to one in respect to this provision of this new legislation. One is that the field committed to the jurisdiction of this Federal executive tribunal is so wide, indeed so much wider than that of the Interstate Commerce Commission, which is already weighed down with its duties, that the act essays to do something that is utterly impossible of performance. This will be seen more clearly to be true when we consider that everything that it has to do must be subjected to the courts before it has in any degree effective sanction and enforcement. We all remember how the interstate commerce jurisdiction utterly failed when it was obliged to submit its orders and its judgments to a court and ask judicial enforcement involving further controversy and delay of several years.

Second, the Commission is given power to determine whether in interstate business covering this wide field, particular methods of competition are unfair. If this is intended to authorize the Commission to formulate new restrictions upon business, which in its judgment ought to be restrained, it is certainly a delegation of legislative authority which Congress has no constitutional power to delegate to it. It is reasonable to suppose that when the court comes to determine what an unfair method of competition is, it will look to the rules of law and to the statutes of the United States for guidance, and it will keep the Trade Commission within the path thus limited. In other words, what the Trade Commission will have to do is to confine itself in determining the existence of unfair methods of competition to those which violate our present law; that is, to the restrictions of the anti-trust act. It becomes, therefore, nothing but a tribunal of investigation for reporting facts and the application of the law which can only be made by the confirmation of the court. In other words, it is nothing but a glorified bureau of corporations with larger salaries and greater powers of investigation. It is fortunate that the power thus conveyed is not really larger, because the standing and national reputation of the men who have been appointed to fill these large salaried positions as members of the board are not such as to give great public confidence in their experience or judgment. Not one of them can be said to have had national standing as a business man, or as a lawyer; and while the standard suggested for this Commission when its creation was recommended was that of judges of our National Supreme Court, I regret to say that it has not been met in the actual selection of the board. While, therefore, the powers of the board will not in my judgment under the construction of the courts prove to be as formidable as they were heralded to be by those who passed the act and those who proclaimed a new freedom in business, the thundering in the index, together with the passage of the act, has had the result of making capital more timid, of restraining investment, of decreasing the wage fund, and of throwing upon those least able to bear it the burden of business depression. The act, moreover, does furnish to these trade commissioners inquisitorial powers of very doubtful wisdom and utility.

The fourth amendment to the Federal Constitution, passed at the instance of Thomas Jefferson, contains the provision that—

"The right of the people to be secure in their persons, houses, papers and effects against unreasonable searches and seizures shall not be violated."

That amendment recognizes a principle of government that had approved itself to the British people and was confirmed by the American people in the framing of their Constitution. Now, while it is quite possible that the provisions of the Trade Commission Act may not be of such a character as to violate this constitutional guaranty, they do have a tendency to bring about the evil against which this amendment was directed. We have heard a great deal about pitiless publicity, and we have noted the eagerness with which legislators rush into investigations for political purposes and at public expense. The history of the investigations by the Democratic House of the last Administration, if anyone had the time to summarize it, would show a waste of public money, a waste of governmental efficiency and a series of personal injustices done through the instrumentality of partisan investigation that would bring to the minds of judicious men the importance of not going to extremes in the inquisitorial methods for the investigation of private business to which this Trade Commission Act tends. Fear of the excessive and unjust use of this innovation in the law is a legislative cause for alarm to the business interests of the country. On the whole, however, my own judgment is that the Clayton Act and the Trade Commission Act add very little to the effectiveness of the Anti-Trust Act.

One of the greatest objections to them is the construction and effect of the anti-trust law have been settled by twenty years of litigation and consideration by the Supreme Court, and they will now require another decade of litigation to show that they have not added to the scope or material effect of that act.

Clayton Act Was Passed for Political Reasons.

The Clayton Act deals also with the controversy between capital and labor. Into that controversy, by reason of its history, the power of the Federal Courts to issue injunctions, to protect business and property against unlawful invasion necessarily thrusts itself. The Clayton Act has done a good thing in formulating the proper procedure in the issuing of preliminary injunctions without notice in all cases where such extraordinary remedy is needed. Its provisions with respect to the violations of the anti-trust act by labor organizations and agricultural associations have been proclaimed as a great charter for the freedom of labor in its controversy with capital. It was passed for political purposes, to satisfy the demands of the leaders of the American Federation of Labor, with the hope of securing the vote of the labor organizations at subsequent elections. The vote of every member of Congress and of the Senate was noted, and those who were adverse were marked down as unfair to labor and were threatened with punishment by members of the labor unions at the polls. I do not object to this holding members of Congress and of Senators to a responsibility for their votes. It is the right of every American citizen to demand of his representative that he shall conform to his views of National policy or else lose his support whenever he seeks a renewal of his mandate of representation. What I do object to is the cowardice of representatives who yield their own convictions as to how they ought to vote on such measures in fear of the organized power of the unions in their respective districts and States. What I also object to is the hypocrisy and unfairness in denouncing the legitimate use of arguments by other classes in the community to induce members of Congress and Senators to favor or oppose legislation in which such classes are interested by proper organization and proper arguments as "vicious lobbies" to be condemned without stint. Nothing is so unfair and unwise as to enact legislation that seriously affects the property and business interests of a class without giving to that class the fullest opportunity to be heard, whether their cause is a just one or not, and whether their interests are opposed to the public weal or not. It is begging the question and assuming a conclusion before hearing to denounce every activity in bringing their interests to the attention of Congress, by attacking them with an epithet and denying them a hearing by a muck-raking denunciation of their motive.

Violations of Anti-Trust Act Still Punishable.

I have not time to state in detail the effect of the Clayton Act upon the remedies which may be resorted to in controversies between capital and labor, to constrain the methods used by either side in the controversy within lawful limits. I can only state shortly that in my judgment, after a close examination of the act, especially of Section 6, and the limitations upon the cases in which injunctions can issue in labor disputes, that a labor organization or an agricultural association which violates the anti-trust act by injury to business or property of the employer, by violence or crime, or by the use of what is called the compound boycott (that is, by bringing into the controversy material-men and customers through threat of boycott against them unless they cease association with the employer), are still subject to civil action, equitable restraint or criminal prosecution under the anti-trust act. The case of Loewe against Lawler, known as the Danbury Hatters' case, in my judgment would have had exactly the same result under the existing legislation as it had under the anti-trust law before it was supplemented by the Clayton Act. In cases brought by individual employers seeking injunction, contempts of the order of injunction are to be tried by a jury where that which is restrained is a crime; but where it is not a criminal offense, the procedure as to contempts remains the same as before. Where the action is brought by the Government to restrain violation of the anti-trust act, the procedure in contempts is in all cases exactly as it always was. The practice which was followed in the Debs case, i. e., a hearing without a jury, would, if the Debs case were to re-occur, be followed to-day.

This limited effect of the Clayton Act is satisfactory to those who are in favor of complete remedies for any wrong whether committed by labor unions or by employers. The effect may, however, not be seen clearly until the courts have had occasion to construe the act. The evil of the excessive claims as to the effect of the act which its political promoters have made, will be found in the attacks made upon the courts for their proper construction of the language used. The claimants of political favor of labor unionists based on the passage of the act will be loudest in such attacks.

UNION LABOR LEADERS INTOXICATED WITH POWER.

The power that the leaders of the American Federation of Labor exercise has become excessive and detrimental to the public weal and the good of society, and especially of that of the members of the labor unions. I fully approve the principle of labor unions. I believe that they are essential in creating a state of equality of dealing between employes and employers. I believe that they have made possible the enactment of a great deal of most healthful and useful legislation and have greatly aided the just cause of wage earners in this regard. But the power their leaders have acquired by the principle of combination in their organization has intoxicated them, and they have exercised a tyranny over society and over their own members that is certainly leading to a reaction and to a restraint of their great powers within proper and lawful limits. They have failed to condemn in any way as they ought, the use of criminal methods to which in a lawless spirit, their representatives at various times have seen fit to resort. They have raised large funds in the defense of men who have proven to be by their own confessions, violators of the criminal laws, and they have manifested a desire to secure in express statutory declarations, an immunity for labor unions from the operation of general laws that should be uniform. In other words, they have sought to make themselves and their agents a privileged class, not subject to the laws that affect every other man, and even themselves when not engaged in labor disputes. We must, of course, concede that many of the leaders would be glad to utter protests and interfere with these illegal methods that have been pursued, but there are politics within labor unions and labor union conventions, and the loudest and most violent extremists are too often elements to be reckoned with in maintaining the leadership of such unions. The quiet, sensible, conservative members of the union, of whom there are many more than we realize, do not exercise the influence to which their numbers would often entitle them. Such members manifest their opinions in elections where in the secrecy of the election booth they vote their real opinions and often refuse to obey the formal declarations of political policy made under the influence of the conspicuous labor leaders.

The case of Loewe vs. Lawler in the sequel to the judgment has much significance. One hundred and eighty-six defendants with their houses and earnings, subject to the satisfaction of a judgment for more than $250,000, are now appealing to the United Hatters' Union and to the American Federation of Labor, who spurred them on to their lawless methods, to aid them in the payment of the result of this law suit which was vigorously defended at the instance of the leaders of these organizations, in the avowed interest of organized labor. Neither the Hatters' Union nor the American Federation of Labor is willing to raise a fund to relieve these 186 victims of their misguided urging although they could and did raise funds quite as large for the defense of criminals who subsequently confessed their crimes committed in the supposed upholding of the interests of labor. Such a condition can not but have a useful influence in bringing to the attention of the rank and file of organized labor, the necessity for restraining their leaders in such unwise defiance of the law, and in confining themselves to wise, moderate and lawful methods of maintaining their cause against the opposing interests of capital and employers.

What is needed to produce a sobering effect upon the truculent labor leaders, intoxicated with their sense of political power, is political courage on the part of those who seek to represent the people in legislative and executive office, and a full and fair discussion of such legislation as these labor unions press upon Congress and the Legislatures, with bold and earnest opposition, when in such legislation unjust immunity is sought and undue privilege is to be created.

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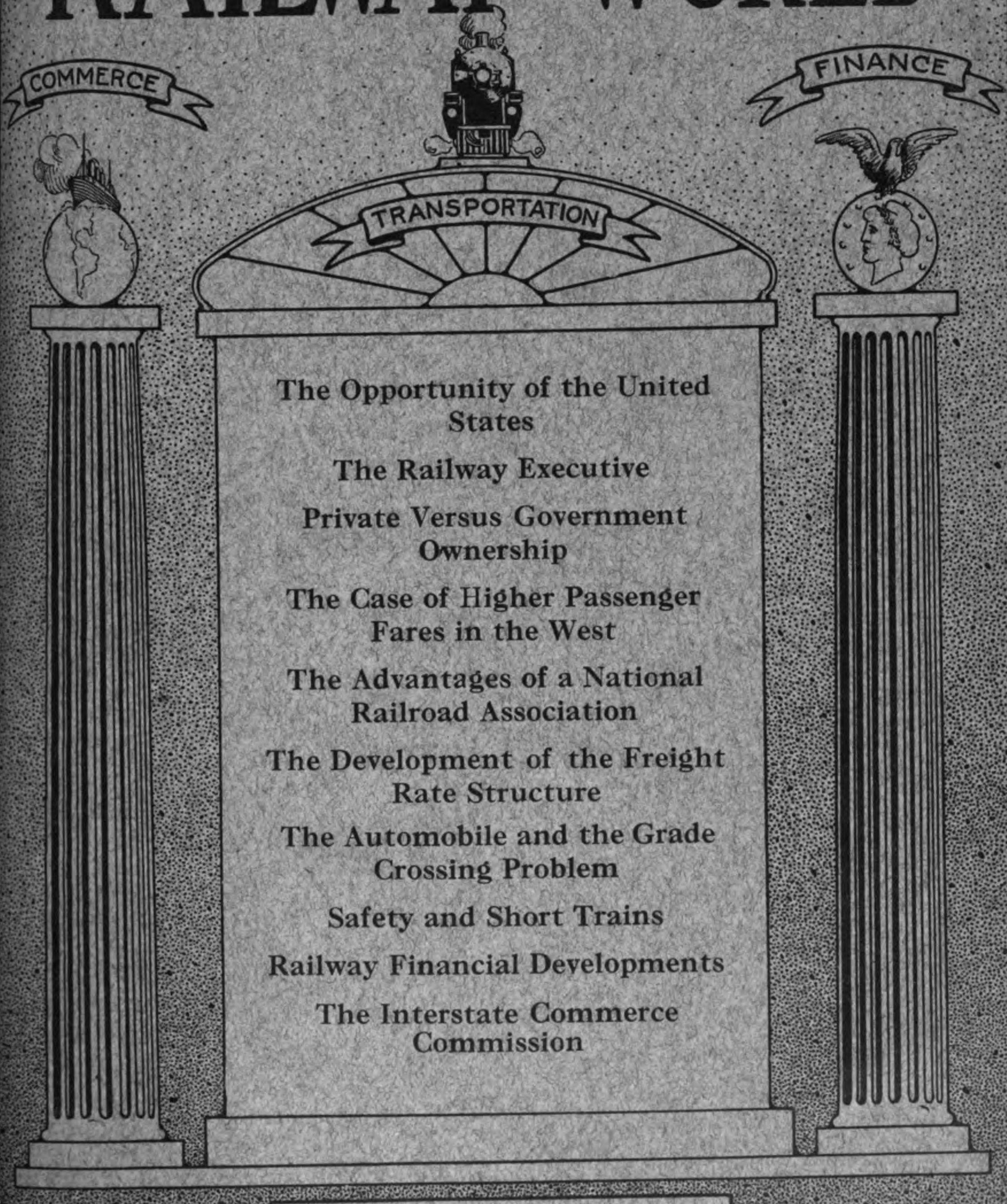

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Terms: $3.00 per Annum in Advance
Foreign Subscriptions: $3.50 per Annum in Advance
Single Copies: 25 Cents
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Important Developments in the Transportation Field

THE OPPORTUNITY OF THE UNITED STATES

Soon after the war broke out much discussion was aroused over the possibility of the United States extending its South American trade. Since then our vision has been enlarged, until to-day the United States stands on the threshold of a trade expansion which should prove unparalleled in the world's history. Should we escape the war contagion which has thrust all Europe into the melting pot, the termination of the conflict is likely to see the United States in a position which will insure it for all times the leadership in international trade.

The Nation may indeed be thankful that at the present crisis in human affairs, it has at the helm such a statesman and patriot as Woodrow Wilson. Upholding the honor of the country in a potential manner, but unswayed by the mouthings of those who would plunge the country into a cataclysm of bloodshed, he is steadfast in his purpose to steer the ship of state into the quiet waters of a peaceful solution of our controversy with European powers. He should have the support of every American citizen in his efforts to conserve with honor the peace of a mighty Nation. Such an example represents the highest type of true courage, and hastens universal peace.

With such a man and such a program, the campaign which the United States should be preparing for is one of commercial expansion. As E. St. Elmo Lewis puts it in a recent issue of the *Arrowhead*, a magazine published by the San Pedro, Los Angeles and Salt Lake Railroad:

> Why are the American factories not running night and day? Why are the railroads not opening up new territories and getting ready for the millions of immigrants who have already made up their minds to leave Europe as soon as the war is over?
>
> Why are there not fifty American drummers in London right now trying to sell $200,000,000 worth of American goods in place of the goods that were bought last year from Germany and Austria?
>
> Why have advertisers become quitters, just at the time when their advertisements were most needed and most effective in cheering on the business forces of the United States?
>
> From the European point of view, the United States is a haven of peace and security and prosperity. It has no troubles that it dares to mention to Belgium, or Austria, or France, or Germany, or Servia, or Great Britain, or Russia.
>
> Every tenth Briton has enlisted Every tenth Frenchman is at the front. Every tenth Belgian is dead. What does the United States know about trouble?
>
> If I could afford it, I would charter vessels and convey a party of 5,000 American advertisers to Europe for a trip of education. I would give them a week in London, a week in Paris and a week in Antwerp.
>
> I would let them look at the United States from the scene of war. I would give them a look at real trouble. I would let them see trains, ten at a time, five minutes apart, packed with the maimed and dying.
>
> I would let them hear from fragmentary survivors, the incredible story of battlefields 150 miles wide and armies that are greater than the entire population of Texas.
>
> I would let them see graves 100 yards long and full, and Belgium, the country that was, nothing now but 12,000 square miles of wreckage.
>
> Then when they began to understand, to some slight extent, the magnitude and awfulness of this war, I would say to them:
>
> "Now go back and appreciate the United States, realize your opportunities Don't start digging trenches when nobody is firing on you. Don't fall down when you have not been hit. Don't be blind to the most glorious chance you have ever had in your life.
>
> "Go back and advertise. Get ready for the most tremendous boom that any nation ever had. Build your factories bigger. Train more salesmen. Borrow more money. Go ahead and thank God you are alive and that your family is alive, and that you are living in a land that is at peace, at a time when nearly the whole world is at war."

We believe the sound moral and practical influence of Mr. Wilson's policies will have their effect upon Europe, and, rather than force this Nation into a conflict of arms, it will concede such important principles as will insure a continuance of the peaceful relations which now exist between the two countries. We submit that in his efforts to bring about a peaceful solution of our various controversies with the warring nations, Woodrow Wilson is evidencing a higher patriotism and courage than the man who, even though an ex-president, would inflame the public conscience to such an extent as to make warfare the only apparent remedy.

THE RAILWAY EXECUTIVE

Few people appreciate the remarkable ability required to become a railway president. In the estimation of no small part of the general public, the position of railway president is looked upon as a sinecure to which a large salary is attached with no corresponding duties. Yet in spite of this popular conception, we venture to assert that, in no other field of endeavor, does a single man shoulder so many heavy responsibilities or feel himself personally compelled to handle such a variety of important and often intricate problems. The range of a railway president's duties makes it necessary for him to be familiar, not only with the workings of every department of the service, but in a broader sense, with general economic and business conditions and with the trend of political activities both in their national and more local application. A railway president must not only be a business man of rare ability, but a financier, economist and statesman as well. Above all he must be a keen student of human nature and a patriotic citizen in the broadest sense of the word.

While the general public does not often picture the ordinary railway president as such a man, there are those who, through a more intimate association with the carriers, have come to more fully appreciate his sterling qualities, and who will not consider the picture overdrawn. Particularly do subordinate railway officials understand the tremendous responsibilities which rest on the shoulders of their chief and on various occasions they have given voice to their sentiments in an effort to show their appreciation of the man and his work. A case in mind was the recent presentation to President George W. Stevens, of the Chesapeake and Ohio Railway, of a handsome silver service by officials of the company at his country home in Virginia, upon the occasion of his sixty-fourth birthday. Mr. Stevens who had planned to spend his birthday quietly with his family, was taken completely by surprise when a special train carrying twenty-five or thirty officials arrived. E. P. Goodwin, superintendent of freight transportation, presented the silver service, reading a high tribute to Mr. Stevens, written by James P. Nelson, of the valuation commission of the railroad. It was a beautiful tribute on behalf of the officials to Mr. Stevens as their "chief," as a railroad man and as a citizen. C. W. Bradley, superintendent of telegraph, who, in the 60's gave Mr. Stevens his first position on a railroad—that of messenger in a telegraph office on the Baltimore and Ohio Railroad—also spoke. Mr. Stevens was greatly affected at the evidences of esteem in which he is held, and with difficulty was able to express his appreciation. On the silver service was engraved the names of the donors, about thirty in all.

In his address, Mr. Goodwin said:

> Mr. Stevens, bear with us a moment while our hearts speak to you.
>
> You came to us a quarter of a century, and more, ago, a stranger. To-day you are our chief.
>
> But what is more, you are our friend in all the beauty, the strength, the breadth, the depth of the meaning of that word.
>
> We bear in our hands an all-too-meager token of our love—our birthday gift. It is our love for you that brings us here; let that love speak.
>
> The wide world of business knows you as an officer ever faithful to a great trust. The world knows you as a wise and safe guardian of a large property. In letters of gold your name is written in perpetual memorial upon the rolls of your company.
>
> You came to Virginia a stranger.
>
> Virginia to-day, with pride, calls you her son.
>
> This is as the world sees you.
>
> But to us has been given the higher privilege of knowing you, the man.
>
> If we have been loyal to you in our services, it has been because you, the man, evoked that loyalty.
>
> Your patience with us when we have failed has aroused us to do better work. Your tireless energy has stirred us to more strenuous labor. Your courage has cheered our hearts when they were faint. You have made our dark hours bright. You have helped us when help was most needed.
>
> We speak as officers of the company whose chief you are; but whenever your name is spoken on our road, there you have those who love you. The lone watchman, who safeguards the track, even when the night is cold, the way deep with snow; the man whose brave skill drives the engine; the humblest laborer on the line—they know you and honor you because, though their chief, you are their friend.
>
> This is why we are here to-day. For, while we leave with you this gift as a token of our love, we leave with you a larger gift, not to be measured by gold or silver or precious stones, but a gift, the greatest of all that even heaven itself can give—the love of every servant of this great company.
>
> God grant you length of years to come and hours serene. God grant you all prosperity and joy. God grant you, most of all, that which is justly yours, the peace that belongs to
> The man, wise, generous and just;
> The man, beloved of all who know him;
> The citizen, an honor to his State;
> The workman, not ashamed of his work.

Mr. Stevens came to the Chesapeake and

Ohio in 1890 as general superintendent, and six months later became general manager. On February 1, 1900, he was elected president of the road. He was born at Utica, O., June 29, 1851. His first six years as a railroad man was spent with the Baltimore and Ohio, from which road he went to the Pittsburgh, Cincinnati and St. Louis Railway, rising to the position of train dispatcher. From 1873 to 1890 he was with the Wabash, St. Louis and Pacific Railway, and its successors as follows: eight years as train dispatcher, two years as superintendent of Ohio and Indiana division, three and a half years as superintendent of the Eastern division and the remainder of the time as assistant general superintendent.

Few men, not native born, have become so thoroughly identified with the interests of Virginia as has Mr. Stevens.

Among the officials from Richmond who went to "Virginia Manor" for the presentation of the silver service to Mr. Stevens were F. M. Whitaker, vice-president in charge of traffic; E. W. Grice, assistant to the president; Garrett B. Wall, assistant to the president; E. P. Goodwin, superintendent of freight transportation; C. C. Walker, superintendent of passenger transportation; J. A. Hancock, assistant treasurer; C. W. Bradley, superintendent of telegraph; F. J. Cabell, chief engineer; John D. Potts, general passenger agent, and R. H. Vaughan, manager of the Blue Ridge Dispatch. The three general superintendents of the road were also present—J. R. Cary, of Clifton Forge; J. Paul Stevens, of Huntington, W. Va., a son of President Stevens, and W. R. Hiedson, of Covington, Ky.

Another president has recently had a signal honor paid him. Daniel Willard, who heads the Baltimore and Ohio System, has had conferred upon him from Dartmouth College, the degree of Doctor of Laws. Mr. Willard's friends are deeply appreciative of the new honor which has been bestowed upon him, but in a larger sense the entire railway community feels a pride in having a co-worker who is such a vital force in the country's development as to be selected for such an honor. Dartmouth College, which is located at Hanover, N. H., is famed as the chief participant in the famous Dartmouth College case which settled the principle of the inviolability of a charter and was the Alma Mater of Daniel Webster and many other distinguished Americans. In introducing Mr. Willard, at the time the doctorate degree was conferred upon him, Professor John K. Lord, of the Dartmouth Faculty, said of him:

> Mr President: For the honorary degree of Doctor of Laws, I present the acknowledged primate of American railroad presidents, who by personal experience in railroad management is acquainted with all parts of labor and direction, and who to his mastery of its details and its public relations and the ability to set forth its principles with literary skill and convincing force, and whose wider interest in human and intellectual relations is indicated by his election as a trustee of Johns Hopkins University.

In conferring the degree, the Pesident of Dartmouth College, Dr. Ernest Fox Nichols, said:

> Daniel Willard, born among these hills, a man of rare sagacity an acknowledged master mind in the intricate details of railway operation and administration, gifted also with that higher, finer appreciation of human values; the college to which your youth aspired welcomes you in your maturity and honors your large achievements, though compassed without her aid.

SERVICE

Service competition is becoming an increasingly important factor in modern railway operations. The employe who treats passenger or patron brusquely or discourteously is being frowned upon, and the men are getting to realize that their advancement depends as largely upon their treatment of the general public, as upon the efficient performance of their other duties.

The Pennsylvania Railroad has recently issued a bulletin in which it takes the advanced position that a passenger on this great system is more than a mere customer. As a customer he is entitled to safe and prompt transportation, but the bulletin points out that the company and its employes should go even further, and treat him as a guest. Passengers are human. They lose their belongings in trains and stations. They go astray themselves. In countless unexpected ways they find themselves in need of aid. Employes of the Pennsylvania Railroad, the bulletin asserts, derive real pleasure in rendering this aid, as the following incident, in the everyday life of one of its employes, goes to show:

Night Station Master Jacob Weldy, at Williamsport, Pa., had the opportunity, recently, to be of great personal service to four very humble patrons of the railroad who were in deep trouble. What Mr. Weldy did, happened to be observed by a total stranger—an officer of the United States Government—who wrote the following letter to the Superintendent of the Williamsport division:

> While in your station at Williamsport, I noticed three small children in company with a very poorly dressed foreign woman, who appeared to be ill and very downcast. There was a man talking to the woman, and I took the liberty of asking him what the trouble was, inquiring whether the woman was ill. He replied that she appeared to be hungry and that the matter was being taken care of.
>
> A short while afterward I found this man and the three children and mother in a lunch room near by, and I learned that the man had brought the whole party to the lunch room and was taking care of them. Moreover, while I was there, I noticed him preparing the food for the children and taking care of them in every possible way
>
> I inquired who the man was, commenting that he seemed to be a person with a mighty big heart, and was advised that his name was Jacob Weldy and that he was night station master at Williamsport. Upon passing through Williamsport again late that evening, I inquired what had become of the children and the woman, having learned in the meantime that they were on their way to Homer and would have to wait until the next morning for a train, and I then learned that Mr. Weldy had obtained a room for the party and they were taken care of by him for the night.
>
> I believe a man who will take care of the patrons of his road, in a case of this kind, is a credit to the company, and I would feel derelict if I did not bring the same to the attention of his superior officers. I am therefore writing you this letter to bring the incident to your attention and congratulate your road upon having a man of this kind in its employ. I may add that Mr. Weldy does not know me and has no knowledge whatever about my writing this letter.

RAILWAY MAIL PAY PAMPHLET

The Committee on Railway Mail Pay has made public a booklet entitled "What the Railway Mail Pay Problem Means to the Railroads." The booklet contains information originally prepared for the use of the executive officers of all the railroads of the country and submitted at a conference of executives held at New York City on May 20, 1915.

Copies of the booklet have been sent to all Members of Congress, officers of the National Administration, State and Federal regulative Commissions, and many other persons in public or semi-public life, as well as to all daily newspapers and other publications. The purpose of distributing this booklet is to inform the public, as fully as possible, concerning the facts on which the railroads base their claim of inequitable treatment regarding the transportation of the United States mails; also to present fairly all essential information necessary for a clear understanding of the matter, from every point of view.

In the booklet, the Committee on Railway Mail Pay discusses the proposed law, dealing with the system of payment for mail transportation, which has been advocated by the Post Office Department and was introduced in the last session of Congress. This proposed law, known as the Moon bill, failed of passage, but the Postmaster General has announced that he intends to have it introduced again in the new Congress and to bring every effort to bear to achieve its enactment.

The Moon bill, as analyzed in the booklet, is shown by the Committee on Railway Mail Pay to amount to an almost complete delegation of the rate-making power, as far as the transportation of the mails is concerned, to the Postmaster General, who would be vested, under its terms, with authority to make the rates anything he might choose, "not exceeding" certain specified sums. He could reduce the rates without restriction and could also dictate, in almost every respect, the character and extent of service the railroads would be required to render. The railroads would be compelled to perform such service as the Postmaster General might demand, at such rates as he might choose to pay, under penalty of $5,000 per day for each refusal.

In the opinion of the Committee on Railway Mail Pay, as set forth in the booklet, the defects of the present practice respecting the payment to the railroads for carrying the mails can best be remedied by providing the following reforms:

1. That the mails be weighed, and the pay be readjusted, at least once a year on every railway mail route, instead of once in four years, as at present.

2. That the railroads be paid for the use and operation of apartment post office cars—for which the present law allows no pay—on a pro rata basis with the compensation allowed for full railway post office cars.

3. That the railroads be paid for, or relieved from, the duty of carrying the mails between railroad stations and post offices.

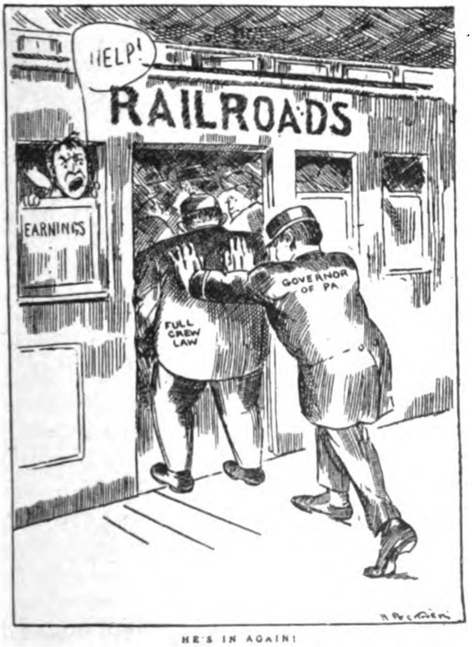
The booklet contains the resolutions unanimously adopted at the meeting of railroad executives in New York City on May 20, last, at which 90 per cent of the mileage of the country was represented. These resolutions completely sustained the position of the Committee on Railway Mail pay, and indorsed the remedies it has suggested.

The resolutions also approved the suggestion of the Committee on Railway Mail Pay that in its opinion the ultimate solution of the railway mail pay problem would lie in reference of the matter to the Interstate Commerce Commission, with full power.

FULL CREW LAW IN PENNSYLVANIA

The more the action of Governor Brumbaugh, of Pennsylvania, is considered in vetoing the repealer of the Full Crew Law, the more it is to be regretted that he should have allowed himself to be influenced by labor union lobbyists. Men of high standing, connected with the railroads, so clearly proved the injustice of such a law and how its repeal would benefit the interests of the general public by curtailing unnecessary operating expenses for which this public must pay in the end, that the Governor's action is inexplicable. The argument put forth by the Governor in support of his action is so weak that it can only be considered with astonishment and regret.

We wonder if the Governor was ever waiting at a small station when a fast freight train pulled through and observed the position of the three brakemen at that particular moment and if, as the rules of the operating department of the railroad prescribes, they all happened to be in their right places, what effect a third man would have in preventing an accident of any nature, if one were imminent. A slight familiarity with railroad history would have given the Governor a better perspective. If he had remembered, that in the days when the old link and pin couplers were in evidence, a train of twenty to thirty cars were handled satisfactorily and successfully by two men, he would have appreciated that with all the modern equipment now available, particularly with regard to automatic couplers and block signals, even with an increased train length, it would prove indeed difficult to justify the demand for additional trainmen, except on the basis of the influence of the labor unions. Such an influence is uneconomic and unsound, and can result in nothing beneficial either to railroad employes or the general public. Its detrimental effect upon the railroad industry is too obvious to require discussion.



HE'S IN AGAIN!

—from "Financial America"

A NEEDLESS WASTE OF HUMAN LIFE

The trespassing evil continues to be one of the chief sources of anxiety to operating officials. While there has been some abatement in certain sections of the country in this habit, the loss of life continues heavy and railroads are not making the progress they should, owing almost entirely to a lack of co-operation on the part of public officials. It would appear that until the Interstate Commerce Commission and the various state commissions take a more active part in the suppression of this evil, the country will continue to lose annually thousands of its useful citizens.

The Pennsylvania Railroad has recently prepared a large bulletin for posting in the stations throughout its system which sets forth the awful results which follow the indulgence of this practice. Not only are more than 5,000 people killed every year while trespassing on railroad tracks, but this habit causes a greater loss of life on American railroads than all other causes put together. Furthermore, these accidents are accidents for which the public alone is responsible, and which result from the breaking of a law made for the public's protection.

The bulletin further points out that more people are killed every year trespassing on railroad tracks in the United States than the total number who lost their lives in the Johnstown flood, the San Francisco earthquake and fire, the Salem, Baltimore and Jacksonville fires and the sinking of the Titanic and Lusitania. The circular closes with the following appeal to the people:

> If 5,000 people were killed by some catastrophe to-morrow in the streets of New York or Chicago, the whole nation would respond with help for the widows and orphans. Steps would immediately be taken to prevent the recurrence of such a catastrophe.
>
> Wouldn't *you* think then that *you* and the other people of this country would take some steps to prevent the annual recurrence of this, the only great catastrophe that happens in this country regularly every year?
>
> When *you* see any man, woman or child walking on railroad tracks, won't you take the time to warn them of the danger they run.

PRIVATE VERSUS GOVERNMENT OWNERSHIP

Private railways of the United States in 1913 exceeded in mileage all the Government railways of the world by a margin of 30,208 miles, according to an analysis by the Bureau of Railway News and Statistics, Chicago, of the annual figures on state and private systems of the world compiled by the Prussian Department of Public Works. In that year the earth's total under private ownership is put at 460,706 miles, while governments owned 223,908. Against this private companies in the United States are credited with 254,116. In this comparison private ownership represents 67.3 per cent of the world's mileage, against 32.7 per cent for government ownership. The comparisons of the two systems follow:

	State		Private	
	1913	Gain	1913	Gain
Europe	115,182	1,577	99,483	661
N. & S. America	27,998	3,794	325,469	4,110
Asia	43,939	151	23,112	1,335
Africa	16,432	608	11,040	386
Australasia	20,357	1,436	1,602	*1,055
Total	223,908	9,566	460,706	5,443

*Loss.

The compilation is partly from unofficial sources and makes no pretense of absolute accuracy, being intended only for general comparison. Listed as state roads are all owned by governments. A considerable mileage of state owned roads is privately operated. A smaller mileage of private owned is state operated.

Though state mileage grew in the year 9,566 miles against 5,443 for private mileage, analysis shows that this is not due to superior activity, the greater part of the state gain being due to absorption. Of the 9,566 miles, 4,478 are contributed by Mexico alone, which is given 12,323 miles of state road in 1913 against 7,845 in 1912. In the same time not a mile was added to the country's total railways. This accounts also for the rather surprising prominence of America in the gains for state ownership.

Similarly in Australasia there was a gain of 1,436 miles of state road though total mileage grew only 381 miles, private mileage losing thus 1,055 miles. Argentina, likewise, added 1,002 miles to state ownership though keeping the same total. There was thus taken from private mileage by these three countries alone about 6,500 miles, without which loss the relative growths would have been about 3,000 for state ownership against about 12,000 for private.

Not only has the United States 30,208 more miles of private road than all state railways of the world, but it has also 47,546 more miles than all other private railways of the world. Outside the United States private railways fall 17,318 miles below state railways.

Yet even outside the United States private ownership on analysis of countries proves the prevailing policy. Of 75 nations and colonies covered, 42 have more private than state mileage, only 33 having more state mileage. Whereas 26 rely wholly on private ownership, only seven rely wholly on state. Even in Europe only two divisions, Serbia and Bulgaria, rely wholly on state ownership, while five, viz.: Great Britain, Spain, Greece, Turkey and Malta, Jersey and Isle of Man, rely wholly on private. In Europe, moreover, state ownership predominates in only 10 out of 21 countries.

America is the continent of private ownership, as even without our 254,116 miles there are 71,353 miles private against 27,998 state, notwithstanding the adverse effect of Mexico. Only Mexico and Peru show a predominance of state ownership, out of 19 countries.

In Asia, only five states out of 12 show a predominance of state ownership, while in Africa nine out of 15 lean toward state ownership, four of them being the German colonies, which rely solely on state ownership. In Australasia state ownership predominates in all divisions save the Hawaiian Islands, part of the United States.

THE CASE FOR HIGHER PASSENGER FARE IN THE WEST

On July 6th, the Interstate Commerce Commission, through Examiner Thurtell, began the taking of testimony in the case involving the petition of Western and Southwestern railways for permission to advance their passenger fares.

C. C. Wright, general solicitor of the Chicago and North Western Railway, presented the opening statement. He spoke as follows:

The advance in passenger fares, included in the suspensions to be heard under this docket, covers the territory from Chicago west and southwest to the Rocky Mountains. The territory involved covers Wisconsin, the northern peninsula of Michigan, Minnesota, Iowa, Missouri, Arkansas, Louisiana, Texas, Oklahoma, Kansas, Nebraska, North and South Dakota. It also includes the interstate rates from Illinois west.

Of that territory, Wisconsin, Michigan, Illinois, Iowa, Missouri, Minnesota, Nebraska, Kansas and Oklahoma now have rates adjusted on a basis of two cents per passenger mile. North and South Dakota are upon the basis of 2½ cents per passenger mile. Arkansas, Louisiana and Texas are upon the basis of three cents per passenger mile. The territory west of the States described, viz.: Montana, Wyoming, Colorado and New Mexico, have rates practically on a basis of 3 cents per mile. The advance in the passenger rates in the States named necessarily includes an advance in rates from and to that territory from districts in which no advance is proposed.

The lines operating in Trunk Line and Central Passenger Association territory, that is, from Chicago and St Louis east of the Atlantic Coast, have generally advanced their rates to the basis of 2½ cents per passenger mile, with mileage books at the rate of 2¼ cents per mile. In the territory involved in the present proceeding, which lies east of the Missouri River and west of the Missouri River on and north of the Union Pacific Railroad in Kansas, the rates under suspension are upon the same basis, that is, 2½ cents per passenger mile with mileage books at 2¼ cents per mile. In the territory south of the Union Pacific line in Kansas and west of the Missouri River, the proposed rates are upon the basis of three cents per mile, with mileage books at 2½ cents per mile.

The passenger rates have been advanced by the carriers under the conviction that the earnings from the passenger business were not sufficient to provide the necessary passenger service and yield a fair return to the carriers upon the property devoted to that service. It is also thought, and it is believed that the evidence will demonstrate, that the passenger service is not paying a fair share of the railroad companies' expenses in the maintenance of their roads, and it is believed that the evidence will show that the ratio of profit and the net rate of return from the passenger business, taken together, are materially less than the return from the freight business.

The results of passenger operation for the last fourteen years will be presented to the Commission, divided into two periods of seven years each, giving the results for each year, both as to the entire systems interested in the proceedings and as to the groups which will be presented

It will be shown that the passenger revenue on these roads in 1914 was approximately $271,000,000. Not all of this revenue is affected by the advance. It is likewise impossible to determine exactly what may be the effect upon the revenue in the territory involved, owing to the fact that under the proposed rates mileage books will be sold at less than the regular rate. It is believed that the advance will not amount to more than 8 or 9 per cent of the revenue in the territory in question, or in round figures, from $20,000,000 to $25,000,000.

It is not necessary now to outline in detail the evidence which will be presented, but it is proper to say that the carriers expect to show that the net operating income of those involved in this proceeding, during the last seven years, has been materially less per mile of road than it was for the seven years prior to that time.

It will be shown, too, that this is true, notwithstanding the fact that there has been an increase in the volume of business and an increase in the property investment. This, of course, results in a materially higher operating ratio and naturally a less net rate of return than has been maintained heretofore.

Comparisons will also be made to present the conditions at the present time with those in 1910. Explanation of this increase in expenses will also be given.

It will be shown that it is largely due to the increase in cost of labor and rate of taxation, and that the economies which have been effected by the carriers and the increased volume of business have not been sufficient to meet the increasing costs of operation.

Taking the lines together, it will be shown that under any of the bases of division of expenses, as between passenger and freight, the return upon property devoted to passenger service does not amount to three per cent upon the value of the property devoted to such service.

Results of the financial operations will be supplemented with data as to the density of traffic, conditions of operation, improvements in service and such other general matters as have been deemed useful to the Commission in determining the reasonableness and propriety of the advance in passenger rates

In the present case the carriers will treat the passenger rates as a whole, without an attempt to make definite separation of expenses as between state and interstate business. Information will be furnished, however, as to the proportion of the business which is state and interstate, the length of haul on each class of business and other matters of that kind affecting the passenger traffic.

> It is believed by the carriers that it is impracticable to maintain state and interstate passenger rates upon any substantially different basis. This belief is based in the thought that to maintain any substantially different basis of passenger rates on intrastate business than that maintained on interstate business would not only be discriminatory, but would be impractical from an operating standpoint

Solicitor Wright's presentation of the case is, in itself, a conclusive argument in favor of the necessity of granting the carriers immediate relief. Many of his statements have already been amply verified and are generally known to be true. The passenger rate situation, being of a simpler character than that of the freight rate situation, accurate conclusions are more easily drawn and it is already well known among both National and State regulators that, in general, the passenger service is not bearing its fair proportion in the total expense of operation.

The wave of two-cent fare legislation which swept over the country a few years ago, has already been discredited, and, to a large measure revoked, so that it should be an easy matter for the carriers, whose average interstate rates are very close to this figure, to show that they are decidedly underpaid for the service which they render. This is particularly true in view of the abnormal growth in expenses during the past ten years, attributed largely to labor and taxes. Passenger equipment also is enormously more expensive than it was a few years ago, both with regard to terminal facilities and rolling stock, all of which has been demanded by the traveling public, and some of which has been forced upon the carriers by public regulators but by whom no provision has been made to cover the increased cost of operation. The following statement, made before the Commission on July 7th by L. E. Wettling, statistician for the carriers, shows that the return on property devoted to passenger service is only 2.37 per cent, while many roads operate at an actual deficit:

> The reductions to two cents per mile in passenger fares brought no stimulus to travel such as was anticipated. The mileage traveled by passengers for each mile of road in 1901 was 62,757. This had grown by 1914 to 107,255, a gain of 70.91 per cent. In the seven years ending with 1907, when the rates were reduced, the increase in travel was from 62,757 passenger miles per mile of line in 1901 to 95,235 in 1907, a gain of 51.75 per cent. In the seven years after the rates were reduced the gain was from 99,040 passenger miles per mile of line in 1908 to 107,255 in 1914, a gain of only a little over eight per cent, compared with the 51.75 per cent gain in the seven years before the rates were forced down.
>
> On top of this failure of the growth in travel to hold its pace, there was, resulting from the rate reductions, a gradual decline in the average revenue, both for hauling the ton one mile and for carrying the passenger one mile. The average revenue per ton mile in the first seven years, 1901 to 1907, was 8.63 mills, which declined in the second seven years to an average of 8.58 mills and amounted in 1914 to only 8.42 mills. The average revenue per passenger mile in the first seven years was 2.13 cents and in the second 2.07 cents.
>
> Efforts at efficiency, to offset the adverse factors of rising costs and falling rates, although they have brought conspicuous results, have not been adequate With larger power and equipment and denser traffic, the tons carried per train on these railroads rose from 241 in 1901, to 387 in 1914, but the tons per car, in spite of the larger and heavier equipment, rose only from 10.10 tons to 12.27 in the same time. The number of passengers per train rose from 37.22 in 1901 to 51.82 in 1914 and the passengers per car rose in the same time from 7.56 to 9.31. All of this represents greater efficiency in handling traffic, in spite of which the earning power has declined.
>
> In providing the service demanded by the public there has been a steady gain in number, size and value of equipment On June 30, 1906, there was a total of 11,959 passenger cars owned or leased by 42 of these railroads, of which 11,899 were wooden cars, 60 were steel underframe and none were all-steel. The average value of all was $5,740 and the average weight 71,307 pounds. On June 30, 1914, there were in service 16,958 cars, of which 13,030 were wooden, 1,636 were steel underframe and 2,292 were all-steel. The average value had risen to $7,409 and the average weight to 85,291 pounds. The average value of the all-steel cars was $12,343 and their average weight 121,170 pounds. On June 30, 1914, there were 167 passenger train cars, including Pullmans, owned or leased for every 1,000 miles of line, against 139 in 1906. There were in service June 30, 1914, 21,331 locomotives against 15,691 on June 30, 1906. Of these there were in 1914 in the passenger service 5,108 locomotives with an average weight of 116.85 tons against only 3,978 in 1906, with an average weight of 87.42 tons
>
> Occasioned by the more valuable equipment and the public demand for better service, the aggregate expense for maintenance of road and equipment rose from 25.96 per cent of operating revenues in the seven years to 1907, to 28.41 per cent in the seven years to 1914, equaling 4.33 per cent of the cost of road and equipment in the first period and 5.15 per cent in the second. The aggregate maintenance cost per mile of line for the first period was $2,003 and in the second $2,603. Total maintenance per passenger car mile rose from 7.499 cents to 8.008 cents, but per passenger mile the total expense fell from .8753 cents to .8324 cents. Locomotive repairs, renewals and depreciation rose from 7.215 cents per locomotive mile to 10.689 cents, while maintenance of passenger cars rose from .974 cents to 1.121 cents per car mile.
>
> As the result of decreased rates and higher expenses, the profit from passenger service is ex-

cessively small and on some of the roads, especially in the Southwest, the passenger service is operated at a deficit. This has been determined by a separation of operating costs between freight and passenger service. In 1914, 67.22 per cent of all operating expenses were due to freight service and 32.78 per cent to passenger. The average ratio of expenses to revenue in both services was 76.22 per cent. The operating ratio in the freight service was 72.51 per cent, while in the passenger service the ratio of expenses to revenue was 85.16 per cent.

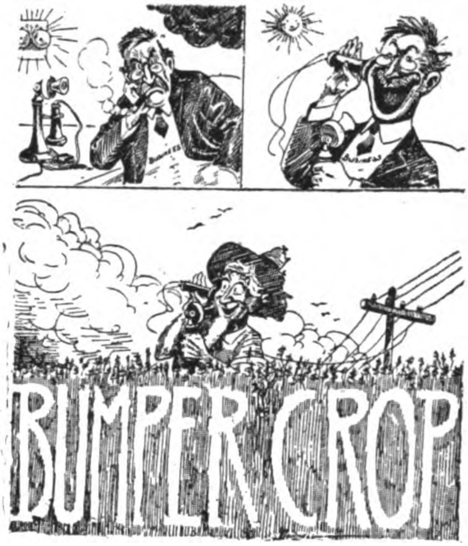
Both services combined earned a net return equaling 4.24 per cent on the value of the property. In the freight service alone the return was 5.15 per cent while the passenger service earned only 2.37 per cent on the value of the property devoted to passenger traffic on all of these 46 railroads as a whole

Only about one half of the estimated increase of from twenty to twenty-five million dollars in passenger revenues from the proposed advance in passenger fares would accrue, unless the state fares, as well as interstate, are advanced, for almost exactly one half of the total travel is wholly within one state. The total passenger miles on 40 of the roads in 1914 was 11,796,186,229, of which 5,857,738,762 was state and 5,938,447,467 interstate. The passenger revenue from state travel was $123,611,447 and from interstate $122,820,650. The average revenue per passenger per mile was 2.11 cents on state travel and 2.068 cents on interstate. The distance traveled by passengers for each mile of line on the 40 roads was 53,294 miles in state travel and 54,028 in interstate travel. The average distance traveled by all passengers in state travel was 28.67 miles and in interstate travel 100.63 miles

THE OUTLOOK AS VIEWED BY PROMINENT OFFICIALS

A number of railroad officials have recently expressed themselves as confident of a return to more prosperous conditions and greater transportation activities. While enormous grain crops constitute no unimportant factor in a prophesy of this character, there are other factors only slightly less important which are all favorable to a more general resumption of business.

Our balance of trade is swelling to enormous proportions, while the demand of foreign nations for many of our products, has only just begun. Furthermore, the railway situation has assumed a distinctly more favorable tone within the past two or three months, and unless unduly interfered with by commissions or legislative bodies, is likely to continue to improve to such an extent as to again make a railroad investment unusually attractive to those who are in the market for stable securities. Passenger traffic is also showing an encouraging stimulation, not only breaking all records in transcontinental travel, but summer resorts are generally patronized and a more general buying by commercial men in anticipation of a brisker fall trade is having its effect in a heavier travel.



Cheer Up!
—from "St. Louis Globe Democrat"

Passenger Traffic Manager Charles S. Fee, of the Southern Pacific, who is also a director of the Panama-Pacific International Exposition, has recently returned from a six weeks' trip throughout the United States with an optimistic impression of the outlook for Exposition travel. In a published interview he sums up the situation as follows:

> In Illinois, Iowa, Wisconsin, Minnesota—excepting the copper country— the Dakotas, Missouri, Nebraska and Kansas, there is every indication that the Pacific Coast will attract a very heavy travel, especially during the school vacation period. This period, by the way, is likely to prove the high-water mark of the travel season, especially as the large percentage of the conventions to be held in San Francisco and on the Pacific Coast will come during July and August. The conditions in these Western States, especially in the farming communities, seem to be all that could be desired, and agents report that the bulk of their inquiries are now coming from the country, particularly the farming region, and not so much from the cities.
>
> The general report throughout the country seems to be that never before in the history of large travel movements have there been so many applications and inquiries as with respect to the expositions in California; and to the country itself along the whole of the Pacific Slope.

SEAMEN'S ACT REFERENDUM

Early in July the Board of Directors of the Chamber of Commerce of the United States, by an unanimous vote, ordered a referendum to secure an expression of opinion from the business men of the country on the much-discussed Seamen's Act. This gave an opportunity for six hundred chambers of commerce and national trade bodies, representing some 300,000 men engaged in business, to go on record as to whether they favored such a measure. In this matter the question was taken up by every State in the Union and the results, which have recently been made public, present an overwhelming opposition to a Government-owned merchant marine but a tremendous approval of some sort of subsidy which would permit the proper development of an American merchant marine, under private ownership.

The voting, which was extensively carried on throughout the country, took about six weeks. There were two ballots, each organization being entitled to from one to ten votes, according to the number of its membership. The following results were obtained with reference to the first ballot which, as indicated, was divided into four questions:

> Do you favor the Government undertaking the purchase, construction, or charter of vessels for mercantile purposes, together with the operation of such vessels?
> In favor, 82
> Opposed, 698.
>
> Do you favor ownership of merchant vessels by the Government but with operation by private parties under leases?
> In favor, 54.
> Opposed, 711.
>
> Do you favor subsidies from the Government sufficient to offset the difference in cost between operation of vessels under the American flag and operation in the same deep-sea trades under foreign flags?
> In favor, 558.
> Opposed, 186.
>
> Do you favor subventions from the Government to establish regular mail and freight lines under the American flag to countries in which the commercial interests of the United States are important, and to American dependencies?
> In favor, 718.
> Opposed, 48.

In the second ballot are set forth recommendations by the National Chamber's special committee on merchant marine, of which William H. Douglas, of New York, is the chairman, and the other members are, Bernard J. Rothwell, Boston; Thomas L. Stitt, Chicago; John A. Penton, Cleveland; Edwin J. Clapp, New York; Ludwig Nisson, New York, and H. A. Black, of Galveston. The committee recommendations and the voting follows:

> The committee recommends the creation of a federal shipping board to investigate and report to Congress regarding the navigation laws and to have full jurisdiction, under the law, in all matters pertaining to over-sea transportation.
> In favor, 645.
> Opposed, 116.
>
> The committee recommends that the Government subscribe to the entire stock of a marine development company with a capital of thirty million dollars, this company to have authority for seven years to lend, under supervision of the federal shipping board, upon the security of first mortgages on merchant vessels, taking as evidence of this indebtedness bonds which bear a fair rate of interest and contain provisions for amortization, the development company to guarantee the bonds as to principal and interest and sell them to the public.
> In favor, 422.
> Opposed, 314.
>
> The committee recommends that the ocean-mail law of 1891 be amended by lowering the speed for first-class steamers from twenty to sixteen knots and for second-class steamers from sixteen to twelve knots, and by making the compensation adequate to permit the establishment of lines of steamships carrying both rail and freight.
> In favor, 690.
> Opposed, 66.
>
> The committee recommends that there should be legislation abolishing deferred rebates and providing for supervision of rates by the federal shipping board, with requirements for filing with the board schedules of rates and all agreements among over-sea lines.
> In favor, 607.
> Opposed, 131.
>
> The committee recommends that federal licenses should be taken out by lines, domestic and foreign, engaged in shipping between ports of the United States and other countries.
> In favor, 616.
> Opposed, 121.

Possibly no question which the Chamber of Commerce of the United States has submitted to its members has been more widely discussed. In fact it was the great desire for the sentiment of business men of the country on this important subject which called for a referendum, only eight other referenda having been sent out in the entire history of the organization. The last one was a year ago on trust legislation and this was the first general call which has gone out since.

It would appear, from these results, that public sentiment is yet a long way from Government ownership, particularly with regard to the transportation agencies, either engaged in National or international trade.

Contemporary Opinion

Less Regulation and More of the "Square Deal."

(From the Arrowhead.)

AMONG the omissions of the late Congress was legislation to extend regulation over security issues. Yet railroad financing and financial control are more scrupulous than they have been in some notorious instances in the past, and what is needed now is less talk of evils of the past and more fair consideration of the difficulties of the present. We have to take into account the interests of the shareholder, the employe, the shipper, and the general public. In the narrower sense these interests often clash Underlying them all, however, is a substantial enduring community of interest in what we call "a square deal." To sacrifice the shareholder's interest means to smother investment in railroad enterprise and slowly paralyze our system of transportation to the inevitable injury not merely of the shareholder but of the whole country and every one in it.

To mistreat the employe, to extort from the shipper, each exacts a penalty we must all pay.

At this time the whole country is suffering with and from the condition of the railroads. It is a time for broad views and the burial of animosities, for fair play, and a constructive policy.

Barometers of Business Point to Fair Weather.

(From "Greater New York," the Official Organ of the Merchants' Association.)

COMPARISON of business conditions as they exist to-day with those of a year ago reveals an increase of activity and the spread of a feeling of hopefulness which cannot be misconstrued.

The Government reports indicate enormous crops. The estimated yield of wheat is officially placed at 950,000,000 bushels against 891,000,000 bushels in 1914. Wheat is now selling above $1 a bushel, or practically 20 per cent higher than it sold last year. Similar conditions prevail with respect to other crops.

The iron and steel industry, the great barometer of trade conditions, shows equally encouraging signs. It is employed to about 80 per cent of its capacity instead of 60 per cent, which was the case last year, and prices now are higher than they were then. The same is true in most of the other metal industries.

The price of cotton, which is a valuable measure of textile activities, has risen well above the depressing figures of last fall and the menace of wide-spread financial disaster in the cotton-growing states has vanished.

The condition of the banks seems favorable. We have imported $100,000,000 of gold this year, whereas last year we exported $31,000,000, and the fiscal year will end with a trade balance of approximately $1,000,000,000 in our favor.

Although caution still prevails and probably will continue to prevail to a greater or lesser extent while the European war lasts, nevertheless a definite advance has been made over the disastrous and discouraging conditions which prevailed a year ago. This advance rests upon a sound basis and there is every reason to believe that it will continue.

Conditions distinctly warrant optimism.

A Just Regulation.

(From the Portland (Ore.) Telegram.)

THE man who reads the papers may have noted that there is a new rule emanating from the Interstate Commerce Commission to the effect that there must be a declaration of the value of interstate baggage Perhaps the man who reads the papers, taken in his entirety, does not understand just exactly what that ruling means.

The simple statement that there must be a declaration of value is understandable enough, but why the declaration? What does it signify in terms of dollars and cents to the man who owns the baggage?

Baggage to the value of $100 will be carried free under the check issued, and the railroad will be responsible in the event of loss. But suppose the baggage is really worth $200, $500 or $1,000, it is not held to be fair that the railroad should assume responsibility for this greater loss without some compensation for the risk. So the rule which requires declaration of value also provides for an additional charge of 10 cents for every $100 in value above that which goes free under the check. If the property in one's trunk is worth $500, it means that the fee for checking will be 40 cents, and if it should be $1,000 then the fee would be 90 cents.

It is a simple matter of business that seems equitable and fair—one of those just regulations of which no reasonable person ought to complain.

The Express Companies Rate Plea.

THE New York Times makes the following comments on the argument upon the motion of the express companies for relief from the rates imposed upon them by the Interstate Commerce Commission, and which on the first year's operation show a loss to the companies of over two and a third million dollars:

"The express companies' plea is that, having reformed, or been reformed (as to practices and methods), they have a right to earn their living, and even a profit That there is merit in their plea appears from the fact that many shippers do not object to it. The sole representatives of shippers who do object said: 'The shippers I represent do not oppose the grant of larger revenues if, in the opinion of the Commission, the express companies need more money.' The only objection, therefore, is to the manner of the increase, which the representatives of small shippers say would bear too hardly upon them.

"If that is so, it is largely the result of the scheme of the Commission. It was the Commission which divided the charges into a route charge and a terminal charge, and the companies are not proposing to alter that plan. Their proposal is that the terminal charge should be increased upon each package and to decrease the mileage allowance, the net result being an estimated increase of revenue by $2,531,317. It is obvious that each package carried passes terminals and enjoys the facilities without reference to the size of the package or the length of the journey. Each package carried over the same route or distance also ought to be charged not according to distance exclusively, but also according to weight or size, with some weighting against the parcels which require care and handling regardless of their size and pay but a small charge.

"There can be no doubt that the past year has been a troublous one, and that the express business has been peculiarly disturbed both by the postal parcel service and the war That may moderate severity of criticism, but cannot extenuate requirement that the companies shall go along on the present basis. It may be that the Commission is the best authority to say what the reform of the reform shall be, but it is within the right of others than the Commission to say that the companies should be allowed their profits in the future, whatever their shortcomings in the past, and whatever the merits of the parcel post. The parcel post does not collect its business nor give receipts for it; does not attempt to do all sorts of work done by the express; it assumes no responsibility for care in the handling of packages; and neither traces nor insures as express companies do.

"The companies, which had no friends when their deserts were smaller, now have interested defenders. There are many who prefer the express to the parcel post, and there are those who think it unjust and undesirable that the express should be regulated in a manner to throw business to the postal parcel service. In fact, the Merchants' Association of this city has formally memorialized Congress against the postoffice's ambitious and expensive plans for the postal parcel business, and for the preservation of what the Association calls an indispensable facility of business."

The Influence of a Good Record.

(From the "Southern Pacific Bulletin.")

FOR something like thirty years John Jones—that is not his real name, of course, for many of you know him—rode in the cab of a Southern Pacific locomotive. He had a passenger run most of the time and he was a good engineer, a conscientious, faithful employe. One night through his own fault an accident occurred. The officials who knew him and the men with whom he worked could not understand it. They could not figure how Jones could allow it to occur. And yet there was the bald fact that the accident was preventable.

It looked pretty tough for him, especially because he had been counting on a company pension. He could not understand, himself, how he had ever neglected to take the precautions that would have prevented the accident, and it was hard for him to realize that, after all these years of faithful service, his railroad career should be stopped off in the manner it was.

John's superintendent felt bad for him. He decided to look into his personal record and see if there was not some way to save him. He discovered that John's record was a remarkably good one. There was the time when he won the attention of the general office by a certain action in protecting company property. There was the time when his vigilance prevented what would have been a bad smash-up. There was the time when his watchfulness prevented what might have proved a costly financial loss to the company. All these things the superintendent noted very carefully and then he called them to the attention of other officials.

* * *

Some little time later, John was called into the superintendent's office. There he was told that he had been retired on a pension. You can imagine the relief he experienced and the gratitude he felt. With the sudden lifting of the strain and worry, he felt suspiciously like crying when he attempted to thank the superintendent.

"Don't thank me," said the superintendent, waving his hand. "I have not done a thing in the world for you that calls for thanks. It is your own record that won out for you when you were in a jam. This and this alone saved you and saved your pension. In other words, you have been storing up this record for a long time, just as though you were putting your money in the bank for a rainy day. When you suddenly found that you had incurred a debt, you looked back over your deposits and found something with which to discharge the obligation."

John went out, feeling very much more of a man than when he entered the office. He himself had been his own salvation. His record of faithful, loyal service saved him when he was in trouble. And he was grateful that he lived in a day and age when railroad officials look not for the weak points in a man's character or career, but for the good.

* * *

The personal record system is something of which every company employe should be proud. It is nothing more or less than the balance sheet of a man's life and actions. It is the history of himself, as he knows himself to be, and as long as he is square with himself and his employer he can take a deep satisfaction in it. It records that he is a good man, that his habits are clean, and that he is loyal and faithful to the firm or man who entrusts him with whatever responsibility he must assume in the performance of his work. It is his moral bank account, designed to be a help to him just as it proved a boon to John Jones when he found himself in trouble. No man who is on the level can look at it in any different light.

If You Work for a Man, in Heaven's Name Work for Him.

THE following by Elbert Hubbard, was printed in the "Chicago Examiner" after he lost his life in the Lusitania disaster.

* * *

If all the letters, messages and speeches of Lincoln were destroyed except that one letter to Hooker we still would have an index to the heart of the Rail-Splitter.

In this letter we see that Lincoln ruled his own spirit'; and we also behold the fact that he could rule others.

The letter shows wise diplomacy, frankness, kindliness, wit, tact and infinite patience.

Hooker had harshly and unjustly criticised Lincoln, his commander-in-chief.

But Lincoln waives all this in deference to the virtues he believes Hooker possesses, and promotes him to succeed Burnside.

In other words, the man who had been wronged promotes the man who had wronged him, over the head of a man whom the promotee had wronged and for whom the promoter had a warm personal friendship.

All personal considerations were sunk in view of the end desired. Yet it was necessary that the man promoted should know the truth, and Lincoln told it to him in a way that did not humiliate nor fire to foolish anger; but which surely prevented the attack of cerebral elephantiasis to which Hoker was liable.

* * *

Here is the letter:

"Washington, January 26, 1863.

"Major General Hooker:

"Dear General—I have placed you at the head of the Army of the Potomac. I have done this upon what appear to me to be sufficient reasons, and yet I think it best for you to know that there are some things in regard to which I am not quite satisfied with you.

"I believe you to be a brave and skillful soldier, which, of course, I like. I also believe you do not mix politics with your position, in which you are right.

"You have confidence in yourself, which is a valuable, if not an indispensable, quality.

"You are ambitious, which, within reasonable bounds, does good rather than harm; but I think that during General Burnside's command of the army you have taken counsel of your ambition and thwarted him as much as you could, in which you did a great wrong to the country, and to a most meritorious and honorable brother officer.

"I have heard, in such a way as to believe it, of your recently saying that both the army and the government needed a dictator. Of course, it was not for this, but in spite of it, that I have given you the command. Only those generals who gain successes can set up dictators. What I now ask of you is military success, and I will risk the dictatorship. The government will support you to the utmost of its ability, which is neither more nor less than it has done and will do for all commanders.

"I much fear that the spirit you have aided to infuse into the army, of criticising their commander and withholding confidence from him, will now turn upon you. I shall assist you as far as I can to put it down. Neither you nor Napoleon, if he were alive again, could get any good out of an army while such a spirit prevails in it. And now beware of rashness, but with sleepless vigilance go forward and give us victories. Yours truly,

"A. LINCOLN."

* * *

One point in this letter is especially worth our consideration. That is the habit of carping, sneering, grumbling at and criticising those who are above us.

The man who is anybody and who does anything is certainly going to be criticised, vilified and misunderstood. This is a part of the penalty of greatness, and every great man understands it; and understands, too, that it is no proof of greatness.

The final proof of greatness lies in being able to endure contumely without resentment. Lincoln did not resent criticism; he knew that every life was its own excuse for being, but look how he calls Hooker's attention to the fact that the dissension Hooker has shown is going to return and plague him. "Neither you, nor Napoleon, if he were alive, could get any good out of an army while such a spirit prevails in it."

Hooker's fault falls on Hooker—others suffer, but Hooker suffers most of all.

* * *

If the concern where you are employed is all wrong, and the Old Man is a curmudgeon, it may be well for you to go to him and quietly and kindly tell him that his policy is absurd and preposterous. Then show him how to reform his ways. Do this, or if for any reason you should prefer not, then get out.

If you work for a man, in heaven's name work for him.

If he pays you wages that supply you your bread and butter, work for him—speak well of him, think well of him, stand by him, and stand by the institution that he represents.

If you must vilify, condemn and disparage, resign your position, and then, when you are outside, damn to your heart's content. But I pray you, as long as you are a part of an institution, do not condemn it. Not that you will injure the institution—not that—but when you disparage a concern of which you are a part you disparage yourself.

More than that, you are loosening the tendrils that hold you to the institution, and the first high wind that happens along you will be uprooted and blown away in the blizzard's track and probably you will never know why.

The Failure of Government Ownership of Railroads

By F. G. R. Gordon.

Note.—The folowing paragraphs are taken from an article found in a publication recently issued by the National Civic Federation, which combines a number of statements by prominent men on the subject of "Shall the Government Own and Operate the Railroads, the Telegraph and Telephone Systems?"

FOR a dozen years or more many socialist magazines, newspapers, books and pamphlets, containing articles advocating the government ownership of railroads, have been given wide circulation throughout this country. Many men whom we delight to call statesmen have attempted to prove that government ownership of the great transportation systems is both wise and just. Most of the articles and speeches are made up largely of misstatement, misrepresentation and ungrounded assumption. In reply to such assertions I submit actual, not fictitious, data. With their aid, I shall show that the American railroads are capitalized per mile at less than one-half the capitalization of the government-owned railways of Europe; that the privately owned railroads of this nation give the best and cheapest service and pay the highest wages in the world; that the people of this nation save more than $5,000,000 a day, in freight transportation alone, compared with the high rates charged by the State-owned railways of Germany; and that freight rates in this country are without exception cheaper, in most cases by from one-half to three-fourths, than rates on the socialist railways of Europe.

While the facts do not bear out the general socialistic estimate of the railway situation one cannot find fault with the onslaught which is made on certain railroads and the juggling of finances by those who controlled them years ago, and even by some who are in control to-day. Such scandalous disclosures as we have had in the last three or four years justify any onslaught that anybody can make. But there is a silver lining even in this cloud, and that is that in the last five years the Interstate Commerce Commission has been given full power to end all such practices. In fact, it is the Interstate Commerce Commission which has exposed the iniquities of the New York, New Haven and Hartford Railroad and the legislation which we have now secured will prevent such scandals in the future. But the socialists make no mention of this great advance in business standards that has come about in the last few years.

Let us examine their indictment of our railroad system and their proposition for government operation. The charges usually brought against the railways of this country by advocates of government ownership are "over-capitalization," the "high cost of service" and the "appalling loss of life." Let us examine them, briefly.

Capitalization.

The charge of over-capitalization of the American railroads falls flat when we compare their capitalization with that of the government railways of Europe.

Actual Capitalization, United States Railroads, 1912.
248,888 miles of Operated Line (I. C. C.).

Total capital stock and funded debt..	$19,694,987,553
Duplication of ownership	5,037,442,484
Net capitalization	$14,657,545,069
Per mile of line owned (238,300 miles)	61,508
Per mile of track owned (341,782 miles) ..	41,204

The $5,037,442,484, the amount of stocks and bonds which the larger systems own in smaller lines, represents a duplication of stocks and bonds to that extent. The necessary subtraction had been apparently overlooked.

The correctness of deducting this $5,037,442,484 is disputed by the socialist advocates. Let us see. This $5,037,442,484 represents securities issued by certain railroads to purchase stock and bonds in other roads. If the New York Central Railroad issued bonds to borrow $2,000,000 for the purpose of buying $2,000,000 worth of stock in the Erie Railroad, it has added $2,000,000 to its debt, but it has $2,000,000 of the stock of the Erie Railroad, and dividends on this $2,000,000 are now paid to the New York Central Railroad instead of to the Erie stockholders. Dividends are not paid on $2,000,000 more of capitalization; there has been no increase. The Interstate Commerce Commission Reports for 1911 show this in giving the amount of $168,592,376, included in "other income" as representing inter-corporate payments of dividends and interest—this revenue being from the ownership or operation of one system of roads by another.

As will be noted, the largest part of the "other income" account simply represents dividends paid out of income to certain companies for stocks and bonds owned in other railroads. Taking two farms as an illustration, the problem is made very simple. The Smith farm and the Jones farm are each capitalized at $10,000. The Smith owners wish to control the Jones farm in order to grow potatoes on an increased scale, but the Smiths have no ready capital. They, therefore, borrow from the bank $6,000, issuing a mortgage (bond) on their farm. With this $6,000 they buy control of the Jones farm. They thus own six-tenths of the capital and receive six-tenths of the dividends earned from the Jones farm, and out of this six-tenths dividends they pay interest through the bank for the money borrowed to buy control in the Jones farm. There is still only the net capitalization of $20,000; on the apparent $26,000 of the capital stands the debt of $6,000 exchanged for six-tenths of the value of the Jones farm capital. Plainly, the Smith corporation has $16,000 invested in the two farms, and the Jones corporation only $4,000.

Four States have made valuation of the railways within their borders, through official commissions appointed for this purpose. Following are the results:

States	Cost of Reproduction	Capitalization
Wshington (1905)	$194,057,240	$161,582,000
South Dakota (1908) ..	106,494,503	109,444,600
Minnesota (1907)	360,961,548	300,027,676
Wisconsin (1909)	296,803,322	225,000,000
Total	$958,316,613	$796,094,276

Now look at the capitalization of the railways of other countries:

Year Country	Miles of Line	Capital or Cost of Construction Total	Per Mile
1911 United Kingdom	23,417	$6,447,969,398	$275,354
1910 German Empire	36,740	4,163,615,519	113,326
1908 Russian Empire*	41,888	3,378,839,810	80,902
1909 France	25,017	3,593,660,000	143,648
1910 Austria	14,038	1,654,207,119	117,837
1910 Hungary ...	12,821	858,732,000	66,977
1910-11 Italy (State)	8,908	1,131,300,000	126,886
1907 Spain (State)	8,980	692,818,000	77,151
1908 Portugal ...	1,465	162,385,280	110,830
1909 Sweden	8,366	277,952,716	33,224
1911 Norway	1,891	81,467,176	43,087
1911 Denmark (State)	1,215	70,277,640	57,841
1910 Belgium (State)	2,685	504,210,184	187,787
1910 Netherlands.	1,978	163,798,304	82,810

1910 Switzerland .	2,924	341,208,367	116,692
1911 Roumania ..	2,153	186,670,372	86,702
1909 Servia (State)	350	31,440,000	89,830
1909 Bulgaria (State)	1,048	60,113,551	57,456
Total Europe, including Asiatic Russia	195,884	$23,800,665,436	$121,503.87
Other countries:			
1912 Canada	26,727	$1,585,724,797	$59,330
1909 British India	32,099	1,448,700,000	45,135
1910 Argentine Republic	17,381	868,914,950	49,981
1911 Japan (State)	4,767	411,598,263	86,343
1912 New South Wales†	3,831	260,613,180	68,288
1911 New Zealand†	2,761	153,448,880	55,574
1911 Queensland†.	3,929	132,982,560	33,820
1911 Victoria† ...	3,505	206,804,550	59,000

From 1907 to 1912 the State railways of Denmark increased their capitalization by 27.13 per cent, and during the same time increased their mileage by only 1.94 per cent. During these same years the capital of privately owned railways of this country increased by 13.44 per cent, and the mileage increased by 9.32 per cent. Or to state it in another way: Our private railways increased their capitalization only one-half as rapidly as the socialistic roads of Denmark, but at the same time increased their mileage five times as fast. Some socialists in an evasive and hair-splitting argument deny that government-owned railways are socialistic. I insist that they are, being essentially owned, controlled, and administered by government authority. My term "socialistic" is scientifically correct.

In 1906 the German railways were capitalized at $104,548 per mile; in the four following years they increased their capitalization by almost $9,000 per mile. The Belgian railways were capitalized at $167,898 in 1903; in seven years these State roads increased their capitalization by $20,000 per mile. Every government railway in Europe has increased its capitalization at a much greater rate than the railways of this country. The over-capitalization bogy of the socialists and government ownership advocates is thus relegated to the region of plain fabrications.

The growth of capital outlay per mile in Germany, France and the United States for the three years, inclusive, 1907 to 1909, shows that Germany increased 4.8 per cent., France 3.3, and the United States only 1.6. In other words, the capitalization of the State railways of Germany increased just three times as rapidly as the private roads of America.

America has the Cheapest Freight Service in the World.

What are the facts upon which the socialists base their charge as to the high cost of service on the American railways.

First, it is a fact that had passenger and freight rates been the same in 1913 as in 1880 our transportation bill would have been more than four billion dollars as against less than three billions —a saving of more than a billion dollars per year. The socialists didn't tell us about this.

Freight rates in America in 1880 were 1.232 cents per ton per mile; in 1890 they had been reduced to .941 cent; in 1900 to .729 cent, and at present the average is practically .741 cent, a slight increase since 1900. That is, in 1880 the rate was nearly twice as great as in 1913. In 1890 passenger rates were 2.167 cents a mile; in 1900, 2.003 cents; in 1909, 1.928 cents, and at present they are about the same. These are the facts presented by the Interstate Commerce Commission. Can any socialistic railway anywhere show similar progressive results? Not one.

Our railroads are transporting beef from Chicago to Boston, a distance of 1,000 miles, for one-half cent a pound; eggs from the Middle West to New England for two cents a dozen; a pair of shoes from Boston to Chicago for two cents. In 1896 a bushel of wheat sold for 62 cents, and that 62 cents would pay for transporting a barrel of flour 1,240 miles on the railroads. In 1913 a bushel of wheat sold for $1, and that $1 would pay for transporting a barrel of flour 2,509 miles. The railroads now carry a pound of ham 1,000 miles for one-third of a cent. The average price of ham is eighteen cents a pound. The railroads carry 54 pounds of ham, 1,000 miles for 18 cents. They carry a dozen of oranges from Los Angeles to New York, 3,100 miles, for five cents. The freight on a suit of clothes made in New York and sold in Chicago for $15 is less than seven cents (6.8 cents).

In Australia the average freight rates are from two to five times as high as in America; in Germany freight averages 1.41 cents per ton per mile, as against .741 cent in this country. What this rate means to the American people can be seen when we figure the cost of our freight at the German rate. Our freight bill for 1912 was $2,211,814,665. As the German rate is 80 per cent higher, the American people would have lost the enormous sum of $1,700,000,000 if we had been compelled to pay the socialistic rate which the German people paid.

The reductions in our freight rate from 1892 to 1912 amount to a saving of $346,640,875 for the latter year. Twenty years ago freight rates on the German railways averaged 1.49 cents per ton per mile; they now average 1.41 cents, a reduction in twenty years that is just one-half the reduction in this country.

Many men are alarmed over the fact that the railroads have asked permission from the Interstate Commerce Commission to increase their freight rates by 5 per cent, a petition which has been granted to some of the roads applying for the increase. Last year the State railways of Hungary increased their freight rates 13 per cent per zone. The State railway of Italy increased both passenger and freight rates, and the Danish government has several times recently increased freight rates on its railways in order to save them from bankruptcy.

Let us see what the German people lost by high freight rates. The number of tons of freight carried one mile on the German railways in the year 1910 was 32,124,223,390. The State railroad reports of Germany are generally delayed about fourteen months, as against only three months for the company railroads of this country. If the German people had paid only the American freight rates of .741 cent per ton mile, their freight bill for 1910 would have been $238,040,495. But they paid 1.41 cents, and their freight bill was $456,-

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* Includes Asiatic railways.

† New South Wales railways are 4 ft. 8½ in. gauge. New Zealand and Queensland 3 ft. 6 in., and Victoria (all but 121 miles) 5ft. 3 in.

766,493, an excess in cost of $218,721,998. It required the ingenuity of a socialist to turn a difference in our favor of $218,721,998 into a statement that the German rates were less than ours.

It has been asserted that in Germany great quantities of freight go via canal and river instead of by rail. Up to 1905 the total capital expenditure of Prussia on its canals and canalized and other rivers amounted to $132,500,000, or less than the State of New York has expended upon the Erie Canal alone. The improvements on the Rhine cost up to 1905 over $60,000 a mile; the expenditure for canals and canalized rivers had been over $40,000 per mile, and the average for river improvements over $30,000 a mile. In 1905 Prussia alone expended more than $4,000,000 for the maintenance of its interior waterways. The receipts for that year were $1,700,000. The direct loss on operation was $2,300,000, and on interest, at 4 per cent, $5,300,000, or a total of $7,600,00. This was a government tax on all the people indirectly in order to provide cheap freight rates on the canals and rivers. Water craft pay very small rates for the use of canals and nothing at all for the use of rivers.

It has been stated that the canals and rivers of Germany are vastly more important in the transportation of freight than are the railroads. Here is an official table of freight carried that serves to show the monumental perversions of which socialist writers are capable:

Rail	Tons, 1885	Tons, 1905
Import	8,000,000	27,000,000
Export	13,000,000	33,000,000
Local	87,000,000	254,000,000
Transit	2,000,000	5,000,000
Total	110,000,000	319,000,000
Water	**Tons, 1885**	**Tons, 1905**
Import	6,500,000	20,000,000
Export	3,500,000	11,000,000
Local	7,000,000	21,000,000
Total	17,000,000	52,000,000

The water-borne traffic is thus seen to be insignificant. The most important canal in Germany, the Kaiser Wilhelm, had a tonnage in 1911 of 7,580,000. Our most important canal, the Sault Ste. Marie, had a tonnage in 1910 of 49,856,123, and in 1913 of over 72,000,000. The freight traffic of our great lakes and rivers and canals exceeds all the water-borne traffic of the German rivers and canals by 150 per cent. All in all, besides enjoying railway freight rates 80 per cent cheaper than the German, our people save $250,000,000 annually by the still cheaper rates for our water-borne commerce on the great lakes alone, which are the cheapest freight rates in all the world, and yet pay the highest wages in the world for like employment. And this business is under private ownership. Don't forget that, Mr. Socialist.

The freight rates on the socialistic railways of Denmark average three times as high as the rates in this country. Taking the last report and figuring it on the Danish rate, we find that our freight bill for the year ending June 30, 1913, would have been over $6,600,000,000 in place of the $2,211,814,665 if we had been forced to pay that socialistic rate! Yet the red-flag coterie howl for socialistic railways to save us from going straight to ruin! The freight rates on the Belgian State roads average 50 per cent higher than in this country, and in France they are 75 per cent higher. Look at this table of freight rates on State-owned railroads:

	Rates per Ton—Cents
Austria, 1910	1.45
France, 1909	1.39
Russia, 1908	.95
Hungary, 1910	1.31
Sweden, 1908	2.23
Norway, 1910	1.68
Denmark	2.16
Holland, 1910	1.32
Switzerland, 1910	2.91
Germany, 1910	1.41
New South Wales	1.78

These rates average more than twice as high as in this country, yet wages in all those same countries average less than half the wages here.

In spite of the fact that the cost of American railroad labor has increased 25 to 50 per cent in the last twenty-five years, and railroad supplies have advanced considerably, both freight and passenger rates have been reduced.

Here is a striking illustration figured from the official reports of the railways of Germany and the United States for the year 1910. One day's average wages of a German railway employee would pay for moving a ton of freight on the State-owned railroads of Germany a distance of 83 miles. One day's average wages of an American railroad employee would pay for moving one ton of freight a distance of 260 miles in Germany.

Passenger rates on the American railroads were reduced from 2.126 cents per mile per passenger in 1892 to 1.992 cents in 1913, a saving over the former year on the number carried in 1913 of $42,024, 446. The total comparative saving on both freight and passenger traffic was $388,665,321. Or, put in another way, freight rates were reduced 17½ per cent and passenger rates 6 per cent. During this twenty-year period the average wages of railway employees were increased from $570 to $734. The total wages paid in 1892 were $468,598,170, and in 1912 $1,268,977,272, an increase of 170.8 per cent. The employees have increased in number from 821,415 in 1892 to 1,728,603 in 1912, or 110.4 per cent. During this twenty-year period railroad taxes increased from $209 to $485 per mile, and they are now $500 per mile.

Passenger Railway Rates in Europe.

Ownership	Class 1 Cents per Mile.	Class 2 Cents.	Class 3 Cents.
Germany (Government)	2.73	1.75	1.16
Belgium (Government)	2.91	1.98	1.17
France (Government)	3.16	2.35	1.53
France (Private)	3.48	2.34	1.53
Italy (Government)	3.60	2.92	1.62

Up to 1907 passenger rates in Germany were as follows:

	Ordinary Trains Cents per Mile	Fast Trains Cents per Mile
First class	3.06	3.45
Second class	2.30	2.55
Third class	1.53	1.79
Fourth class	.77	....

These rates then allowed for baggage and a return ticket at 20 to 30 per cent reduction, etc. Since the new schedule went into effect, in 1907, nothing but hand baggage is allowed the passenger. Return tickets and excursion and convention rates were abolished. While the new schedule calls for slightly less per ticket than the old, the cost of two single tickets for a return trip amounts to considerably more than the return ticket rates of the old system. Under the new schedule an imperial tax is levied upon first, second and third class fares. Tickets costing 60 pfennigs to 20 marks (15 cents to $5) are taxed five cents first class and two and one-half cents second class. Tickets costing more than 50 marks are taxed $2 first class and $1 second class. However, only four per cent ride first class.

Under the new schedule the rates for ordinary train service are: First class 2.68 cents per mile, second class 1.72 and third class 1.15. Express train rates are considerably higher. From Berlin to Hamburg and return, 356 miles, the first class fare on express trains is $11.04. From New York to Washington and return, 450 miles, first class is $10. Besides, on the American railroads, between our larger cities, there are more express trains in twenty-four hours than in Continental countries, where the fast trains frequently have no third class cars. In France the first class passenger rates are 3.48 cents per mile, for second class 1.92 cents and for third 1.73 cents. This includes the State tax of 12 per cent on railroad tickets. The sixty-six pounds of baggage carried free make the rates about equal to those of Germany. First class and second class in Europe are much the same as chair cars here, and the rates figure as high as our chair car service. The cheap passenger rates of Europe are for the third class service, that is to say for accommodations which would not be tolerated in this country. The third class passenger traffic on all State-owned railways in Europe amounts to more than 90 per cent of the total travel. In Denmark only one passenger in 500 rides first class.

Differences in service count much in comparing the passenger travel of America and Europe. Baggage is an important item. In Germany and Italy, for instance, hand baggage only is carried free. Heavy baggage calls for extra payment per weight and distance. In Switzerland the hand baggage allowed free is only up to 22 pounds. There is not a socialistic railway in Europe that carries baggage free to the degree which it is done on the American railways. France allows 66 pounds. Indeed, the baggage problem in Europe is an abomination, as every experienced traveler will declare, as well as being expensive. One heavy trunk on some roads amounts to a third of the regular fare.

The Advantages of a National Railroad Association

By T. S. Ford, Auditor, San Antonio, Uvalde and Gulf Railroad.

THE development of a National Railroad Association along proper lines would present many opportunities for proving or disproving certain statements and accusations, the effect of which in the past has proved highly detrimental to railway management and development.

There is no sense in anyone's allegation that the capital stock of this or that railroad did not cost anything. Capital stock may represent money actually put up, or compensation for services rendered, or legitimate profits resulting from the inception and fulfillment of a business enterprise or for all these and similar things. It has though both a par and a market value, for you can't build a railroad on just bonds issued. To know the real value of capital stock you have to know how much it cost in money and brains and how much blood was sweat for it.

There can be no right to regulate the income of an individual or a corporation without correlative responsibility for their obligations, any more than there can be to fix the price per pound of Camembert cheese. No State or Nation can do a thing by halves. It must be all or nothing. The usurpation or delegation of such powers to any law making body nullifies itself by common-sense analysis.

Railroads as public servants are properly amenable to certain special regulations, laws having as their basis, common-sense. For example, a rate between two fixed points should never be less, under any circumstances, than between two intermediate points over the same route. That is common-sense.

Laws relating to safety appliances affecting employes and the general public are common-sense. Laws forbidding rebates and discriminations are common-sense. States should have the power to grant franchises to build railroads, under the rights of eminent domain and to sanction or forbid the amalgamation, purchase or combine, one road with another, in view of franchises so granted. Also the right of intermediary for the adjustment of certain specific grievances between the public and a public servant.

These are all common-sense, but when it comes to tampering with the pocketbook that has to pay for these enactments and meet all sorts of varying financial, economic and natural conditions, then it's "hands off," no matter whether the investment is in a railroad or a grocery store.

The legitimate capitalization of a railroad, regulated or based upon its physical and franchise valuation, should be within the control of law-making bodies, but that capitalization once determined and authorized, a legitimate and reasonable net profit is a natural right of which the investors can not be deprived by any law-making body.

One difference between legislative regulation of railroad rates and the rates of insurance and loan companies is this: if an insurance company or a bank don't like it they can load their little furniture and fixtures in a box car and move to some other place, or they can go into some other enterprise with their money Railroads can't do that and law-makers know it. Railroads not only can't be moved, but under existing laws have to operate, win or lose.

There is no earthly reason why the railroads should not be reimbursed for losses caused by iniquitous and damaging legislation, particularly when such legislation has been proven illegal. The deterrent principle involved is just as applicable to law-making bodies as to anyone else and they are no more exempt from the penalty of it. No one railroad or ten railroads could bring this about, however; it needs all the railroads.

Just suppose the railroads would serve notice on everybody and say: "From now on we propose to run our own business in a way that will yield a fair and decent return on our investment. It will be accomplished through either the regulation of our expenses or our incomes or both, but it's our money that's invested and we are going to make it pay. You can regulate us and investigate us till the cows come home and we will stand for it, but we will handle the pocketbook end from this on and make it fit the regulations." Suppose all the railroads (not five or six of them) should say this what would happen anyhow? What is the answer?

From 10 to 25 per cent of every big railroad man's time and of his office force is taken up making reports and complying one way or another with requirements of railroad commissions, and yet no account is kept of this cost and no steps ever taken for reimbursement of it. Every one has been too busy digging at it and complying with it, though nothing could be more childishly illegal than this compulsory service without adequate remuneration.

Railroads know absolutely nothing about the total cost of complying with State and Federal regulations, ranging all the way from furnishing ice water at stations to loss of mail revenues earned but not paid for, and yet every cent of this expense could be recovered through increased revenues; forcibly if necessary

Don't forget this, that if by any sort or manner of legislative control, railroad investors are to be pinned down and limited to measly cut and dried, insignificant rates of returns with a possibility of none at all every vestige of speculation eliminated; every effort and hazard insufficiently rewarded, then railroad building in the United States is done; and the railroads which exist to-day never would have been built This proves on the face of it that such laws, regulations and control are illegal, insofar as they affect railroad investments made prior to the passage of them, and if that is true they are equally illegal as affecting railroads built subsequently by reason of the discrimination evident on the face of it.

There can be no such thing as uniformly fixed rates of revenues for railroads running through different localities and subject to varying costs and conditions any more than there can be for the price of a head of cabbage sold in Corpus Christi, Texas, and the Great American Desert, and any legislation to that end is by common-sense analysis just as illegal in the one as the other

There can be no such thing as "standard wages" nor "standard" anything else as relating to revenues and expenses of railroad corporations, since everything depends upon local conditions. Wages like everything else are whatever any railroad chooses to pay, the same as any other employer, insofar as legislative control is concerned.

It is illegal to recognize the claim of any particular class or classes of employes to participate in the profits of a railroad without including all classes of employes from the lowest to the highest, and the actions, findings or conclusions of any tribunal for the arbitration or adjustment of any particular class of wages only, is illegal and void by common-sense analysis.

The rights of capital in every business enterprise are paramount to every other right. Since capital is the first consideration in any business enterprise, it follows that first of all capital is entitled to a legitimate return on the investment, hence everything else is subservient to it. When you put the rights of anything or anybody ahead of capital you kill enterprise. The prices which capital can afford to pay for anything are open market prices, regulated by supply and demand, and labor is as much a commodity and subject to this natural law as anything else, and any legislation to the contrary is foreign to common-sense. If there is any question about this try to do business without capital—just once.

If there is such a thing as the legal regulation of railroad income (which there is not), one thing is dead certain, railroads are going to regulate their own expenses and render their services as their incomes may afford; that is when they wake up and institute some concerted action to that end.

If the Government ever owns the railroads (which it will not) one thing it will do; it will make the railroads pay somehow, and that will be accomplished through arbitrary, main strength reductions in expenditures or increases in revenues, or both, and nobody's consent, pleasure, or opinion will be consulted first, not for an instant. Now take note of this; if the Government can do this thing arbitrarily the railroads can do it themselves arbitrarily. The rule must work both ways.

Railroading of the future in the United States will be a compromise or combination between legitimate governmental regulation (as ultimately determined) on the one hand, far seeing and broad enough to comprehend railroad economics instead of simply railroad annihilation on the other hand, railroad co-operation with these regulations and more particularly with each other through an organization National in scope having in mind three things: a business policy unquestionable and beyond suspicion; co-operation among themselves for the good of all and not the destruction of the weaker; defense for self preservation and enforcement of their rights.

A policy of antagonism and reprisal, though regretable and usually ill advised is, under certain circumstances, defensible. The railroad situation has passed beyond the temporizing stage.

The most conspicuous thing on the railroad horizon to-day is to settle definitely, so it will stay settled, something that now no one appears to know anything about. It is this: whether the railroads are to be controlled, managed or run by the parties who own them and have to foot the bills, the same as any other business, or by somebody else not responsible for deficits, general results or anything else. Pacific measures might accomplish this in time but railroad investors in the meantime would fare like the horse taught to live without eating. How long are investors going to play the part of the horse, that is the question?

Railroad commissions publish and disseminate monthly, figures of railroad current operations which are misleading to everybody who reads them. Commissions should require of railroads a monthly report of their complete financial returns (not part of them only), including all revenues, expenses and other deductions, and if anything is to be published it should be complete and show total results. The harm done to railroad interests by these partial, one-sided reports of commissions is incalculable.

One man's opinion of what constitutes law is as good as another's, depending on the ability of each to analyze a thing from the basis of common-sense.

Some day the railroads will come to and everlastingly settle these things for all time to come and then everybody will wonder why it was not done before

Safety and Short Trains

By Marcus A. Dow, General Safety Agent, New York Central Lines.

Note.—During the past year bills to limit the length of freight trains have been introduced in the legislatures of nineteen States. In fourteen of the States, the legislatures adjourned without passing the bills. Such bills were still pending in five States on June 1, 1915. The following article is the substance of an argument against the "Short-train" bill introduced in Illinois, made by Mr. Dow before the Public Utilities Committee in the House of Representatives at Springfield on May 6, 1915. In a clear and concise manner, Mr. Dow shows the measure of safety existing on American steam railroads and indicates the fallacy of the contention that such laws that are known as the "Short-train" and "Full Crew" laws are necessary to increase safety. Furthermore, he shows that a train limit law would in fact, increase rather than decrease the accident hazard.

THIS bill to limit the length of trains to a maximum of fifty cars per train has been presented and its passage urged as a measure of safety, it being the contention of the gentlemen favoring the measure that shortening the length of trains will lessen the chances of accident and reduce the number of injuries occurring on railroads incident to their operation. To persons unfamiliar with the details of personal injury work and the prevention of accidents as undertaken by the railroads of to-day, this argument may appear reasonable but before accepting it as a conclusion it is essential to consider a number of important facts. First of all, I wish to be understood as in favor of any sincere attempt to prevent accidents but as opposed to any movement fostered under a mask of safety for some ulterior purpose which is only to belittle and weaken the real safety movement and destroy the spirit it is intended to promote.

At the outset, the fact must be admitted, even by those the least informed, that safety in reality rests not upon whether there are a few cars more or less in a given train but upon the way in which that train and others on the same road are handled and operated. There is not now, nor has there ever been, a well-fortified argument for nor a sincere demand to shorten the length of trains to increase safety. The Interstate Commerce Commission in all of its exhaustive studies and reports has never pointed out a single case where the number of cars in a train, nor the number of men on a train, nor the number of engines hauling a train were factors contributing to or causing an accident.

If the proposition is fairly considered it will appear reasonably certain that the passage of the so-called "Short-train" bill will increase rather than decrease the risk of injury.

For instance, we will suppose that on a piece of single track a hundred miles in length there are two trains of more than fifty cars starting from opposite ends of the road and traveling toward each other. There are just two trains to meet and pass each other: two trains for the despatcher to handle and two train crews that must be on the lookout, one for the other. But limit these trains to fifty cars and what happens? The two trains are split into sections and, instead of but two trains to consider, arrange meeting points and be on the lookout for, there are now four trains, with manifestly double the risk of accident. In other words, the density of traffic as measured, by the number of trains will increase with the shortening of the train, resulting in a greater chance of confusion, and increasing the opportunity for error. This feature, of course, becomes more important on roads where the traffic is heavy and density of traffic is already a problem requiring the most skillful attention of expert operating men. Some roads handle a greater density of traffic than others because they have more trackage, more engines and better facilities for so doing and they have increased these facilities year by year as the growth of business demanded. To suddenly require all roads, however, to multiply the number of trains they must handle without a corresponding increase in trackage and other facilities would necessarily result in confusion, increased hazard and excessive delay.

Much stress has been laid by the supporters of this bill upon the great sacrifice of life and limb on the railroads of this country. Admitting freely that there are many persons injured on our railroads and that a large proportion of the accidents resulting in injury can and should be avoided. I wish to point out how these accidents can be prevented and what steps are being taken to prevent them. For years there has been a nation-wide agitation in behalf of greater safeguards for employes of railroads, other industries and the general public. In every State there has been a veritable epidemic of legislation with a view of protecting the working man from possible injury. Safety devices of every description have been installed, rules formulated, regulations adopted and mechanical safeguards invented and applied until it would seem that accidents never could happen. But, the disquieting feature of the situation has been that up to a year ago, in spite of these extraordinary precautions taken to insure immunity from harm, accidents resulting in injuries increased steadily and the very laws that were made to lessen accidents actually seemed to foster them. It remained for the officials of the railroads and other great industries to discover where the real trouble lay. The conclusion was reached that, with all the laws which might be passed and safety devices which might be installed, there would be no successful reduction in accidents until there had been enlisted the co-operation of those persons in whose interest such precautions were being taken. In other words, it was found that the *human element* was knocking all the carefully laid plans of well-meaning legislators into a cocked hat and, with this fact in mind, there has been launched within the past few years what has universally been called a "Safety-First" movement. Practically every railroad in the United States is now vigorously conducting such a movement, regardless of the expense incurred thereby. The method pursued on the New York Central Lines was not unlike that of the majority of other roads. The first step taken was to determine the great underlying cause of accidents and then apply the remedy. It was found that most of the accidents were chargeable to the human element. In fact the records indicated that only 9.65 per cent of all injury cases were due to defective equipment, conditions, tools or appliances, the balance being due to fault of injured man or another employe or else unavoidable.

Statistics of accidents on other railroads throughout the country show practically the same proportion of their injury cases due to human thoughtlessness or carelessness. The report of the Interstate Commerce Commission for the fiscal year 1914 divides all death and injury cases to railroad employes in accidents connected with train operation under the following general causes:

Train accidents (collisions, derailments, etc.)	10%
Coupling or uncoupling cars	5%
While doing other work about trains (not in shops or engine houses) or while attending switches	44%
Coming in contact with overhead bridges, etc., while riding on cars	3%
Falling from cars or engines	12%
Getting on or off cars or engines	16%
Other accidents around trains	4%
Being struck or run over by engines or cars at stations or yards	4%
Being struck or run over by engines or cars at other places	2%
	100%

Thus, it is plainly seen that 90 per cent of such accidents to railroad employes are those that may be prevented by the exercise of greater care on the part of the individual rather than by such legislation as is proposed. It is shown *that only* 10 *per cent were in collisions or derailments,* which are, obviously, the only kinds of accidents this law is intended to prevent. In other words, without analyzing the small percentage of injuries due to train accidents to determine the causes of such accidents, the fact is clearly apparent that the big majority of accidents on railroads cannot be prevented by the making of laws and that the only preventative is well-organized safety work conducted mainly along educational lines.

That the railroads entered into this safety work in good faith and desired to cooperate with the employes in the prevention of accidents to the fullest extent possible is demonstrated in the safety committee organizations authorized and fostered by railroad officials. On the New York Central Lines there are 60 of these division and shop safety committees with an aggregate of approximately 1,200 members and, as on other roads, these committee members consist, for the most part, of employes rather than officers.

These safety committees have been encouraged to freely report and discuss conditions and practices which, in their opinion, ought to be improved to increase the safety of the employes and the public. Since our committees were organized a total of 19,633 items have been reported by members with recommendations for correction in the interest of greater safety and the records show that to date 17,507 or 89 per cent of these items have been corrected. *Among all of the items brought up by these employe committees, however, there has never been a single reference to decreasing length of trains or limiting the number of cars in trains or of increasing the number of men in a train crew, nor has there ever been a recommendation made by any of these committees that such a step be taken in the interest of greater safety.*

A canvass of the roads entering the State of Illinois reveals the fact that these roads alone are spending approximately $200,000 a year in the maintenance of safety organizations This expense includes only the cost of committee meetings, salaries of safety agents and inspectors, printing and other incidental expenses and does not include the money expended in correcting conditions upon recommendations of the safety committees which latter expense amounts to many hundreds of thousands of dollars annually. As an illustration, the New York Central Lines spent over $5,000 in the past three years purchasing safety goggles to protect its shopmen from eye injury while engaged in chipping and grinding work. This is one of the smaller items. Larger ones have included building overhead bridges, fences, walkways, installing improved lighting systems, guarding machinery and changing standards of appliances.

Besides the safety committee organizations, efforts to co-operate with the employes in accident prevention have extended in many ways. Safety Bureaus have been organized on some of the roads with a corps of employes who devote their entire time to a study of the accident prevention problem and in the education of the employes to teach them to avoid unsafe practices. At frequent intervals in railroad terminals large safety rallies are held in theatres or halls where the railroad employes and their families are gathered together for mutual discussion. Here lectures are given and stereopticon views shown depicting unsafe and safer methods of performing railroad work. Inspection trips in special trains are made over the roads by the division committees to encourage the employes who make these trips to be alert for unsafe conditions that may arise. Books pamphlets and circulars containing warnings against unsafe practices are distributed frequently to employes. The New York Central has equipped a safety exhibit car which contains models showing proper method of safeguarding dangerous machinery and of correcting improper conditions and photographs showing safe methods of performing railroad work. This car, accompanied by expert instructors, is taken over the system and daily instruction to employes on safety matters given therein. This road also produced a moving-picture drama, which depicts in a vivid and forceful manner, through a visualized human interest story, many of the practices of railroad men which cause injuries and the unhappy consequences thereof. This picture is shown in a special car fitted out for that purpose and every employe is required to spend, on the company's time, the half hour or more necessary to witness this film. Other railroads have purchased and are using copies of the film.

The success of such accident prevention work depends almost wholly upon the co-operation of the employes. Railroad officials cannot observe the actions of all employes, nor any considerable part of them, at all times and it is therefore important that the employes themselves become imbued with the safety spirit, a spirit that will not only make them careful in their own actions but will cause them to caution their fellow-employes against unsafe practices when such practices are observed. That is the kind of co-operation which is necessary to make safety work a success and prevent accidents. The mere slogan "safety first" counts for nothing if the employes do not grasp its full meaning and live up to the spirit of it. If they believe in safety and believe it is a good thing to stop having accidents, then they must rally to the support of that principle by each and every man doing his share of co-operative and willing work to eliminate the real cause of accidents—the indulgence in careless practices. The passage of a train limit or full crew law will not prevent injury to an employe who carelessly goes in between moving cars to adjust a coupling device without taking the time to first stop the cars and who stumbles and falls under the wheels while in that perilous position. It is because the accident records conclusively show that the majority of injuries are caused by just such acts of carelessness as this that the railroads have launched their safety campaigns. The "safety first" movement of the railroads is not a joke, as one of the supporters of this bill has termed it. It is a serious, earnest and practical attempt to prevent accidents by the most effective means and it needs only the co-operation of the men in whose interest the effort is being made to make it successful.

I desire to call attention to some of the advertising matter that has been sent out by supporters of this "Short-train" bill and to some things contained therein which are intended to mislead those unfamiliar with all of the facts. A postal card sent broadcast decries the fact that 594,359 people were killed and injured on the railroads of this country in the three years from June 30, 1911, to June 30, 1914, and particular stress is placed on the fact that 31,851 of these injuries resulted fatally. The fact that 16,463 of these persons killed, or more than 51 per cent, were trespassers who voluntarily and needlessly risked their lives by going upon the railroad tracks is intentionally suppressed. Nor is any explanation made that 12 per cent of the killed were travelers on the highway and that only 30 per cent of the killed were railroad employes while only 3 per cent of the killed were passengers. Supporters of the bill point accusingly to the fact that in three years there were 594,359 persons killed and injured on railroads in the country, leading you to believe that railroad work is the most hazardous of all occupations and that a railroad is a veritable industrial slaughter house, whereas, in truth, railroad casualties form only a small part of the total industrial accidents annually. Conservative statistics of large insurance and casualty companies indicate that from thirty to forty thousand persons in industrial occupations are killed and more than two million injured every year. These figures do not include other than industrial acidents, such as those occurring in the city streets, etc. The coroner's record for New York City indicates that during the year 1913 a total of 5,750 persons met violent death in the Borough of Manhattan alone, of which 402 were in street accidents, 867 were due to falling out of windows, down stairways, off of scaffolds, etc., and 215 were due to accidental drowning. This, remember, is the record for only one city in the Union.

The average American will be astounded to learn of the large number of persons killed and injured in accidents in connection with agricultural work which is presumed by many to be a comparatively non-hazardous occupation. It is regrettable that there is no authoritative record of such accidents in this country but the records of the German Empire for the year 1908 indicate that 32.5 per cent of all permanent total disabilities resulting from industrial accidents in that country were in agricultural employments and 45 per cent of the permanent partial and 45 per cent of the temporary disability cases were chargeable to the same industry.

A further interesting comparison, as to the hazard in railroad work compared with other industries, is found in a statement published by the Prudential Insurance Company of America of the number of male persons killed per 1,000 employed, as follows:

	Persons killed per 1,000 employed.
Metal Mining	4.20
Coal Mining	3.50
Fisheries	3.00
Navigation	3.00
Railroad Employes	2.40

It will thus be seen that in reality there is less hazard connected with employment on a railroad than in four other important industries in the country

It is only fair that we measure accurately just what degree of safety there exists on our railroads to-day in view of the intent of supporters of this bill to class them as alarmingly unsafe and in need of greater regulation. Interstate commerce figures indicate that, during the year ended June 30, 1913, on all the railroads of the country, there were 181 passengers killed in train accidents while during that period there were 1,018,283,000 passengers carried. Therefore, there was one passenger killed in a train accident for every 5,625,873 carried, regardless of the distance they were carried. One of the gentlemen arguing in favor of this bill said he wanted to feel as safe while riding on a railroad passenger train as he would be on the city streets at home. Now, in the city of Chicago alone during 1913 there were 372 persons killed in the city streets by being struck or run over by some moving street vehicle. Chicago has a population of approximately 2,500,000. Therefore, *as against 372 inhabitants of Chicago killed in her streets by moving vehicles and hundreds more of her citizens killed in various other ways in a single year,* the railroads of the country transported *more than twice as many passengers as Chicago has inhabitants before one was killed in a train accident.* In the cities of New York and Chicago during 1913 there were 774 persons killed in the city streets by being struck or run over by some moving street vehicle, and during the year ended June 30, 1914, there were only 85 passengers killed in train accidents on all the railroads of the country, so that *in those two cities alone there were nine times as many persons killed by vehicles in the streets as there were passengers killed in train accidents in the entire country.*

The proponents of this bill have insistently intimated that the railroads, almost without exception, have accidents every year resulting in fatal injuries to passengers, the statement having been made that it is questionable if any railroad except the New York Central went through last year without killing a passenger. This high compliment would be gladly accepted by the officials of the New York Central were the statement a truthful one as far as the other roads are concerned but, like other statements which have been made, it was made without investigation. The real truth of the matter is, that, while the New York Central Railroad did not kill a passenger in a train accident last year and, on its Lines East of Buffalo, has not killed a passenger in over four years, during which time it has carried in that territory passengers equal in number to more than twice the entire population of the United States, yet there are many other roads with enviable records of a similar character. In fact, during the fiscal year 1913, there were, in the United States, steam railroads of 299 operating companies, with a mileage of 120,901 miles, which is practically one half the entire railroad mileage of the United States and which, if stretched out into one long railroad, would form a steel girdle extending five times around the globe, on which there was not a passenger killed in a train accident, although there were more than four hundred million passengers carried by these roads, a number equal to four times the country's population.

So much for the safety of passengers as it exists on railroads to-day. Now let us see what degree of safety there is for the employe as far as train accidents are concerned. Interstate commerce figures also indicate that in the year ended June 30, 1913, there were 557 employes killed in train accidents. During that same period the railroads transported 300,558,334,000 tons of freight one mile with an average of 14.31 tons of freight per car, or 21,003,377,638 loaded cars one mile, so that one employe was killed in a train accident for every 37,708,039 loaded cars moved one mile. And what does this indicate? Simply this, that for every *hundred* loaded cars operated a distance of 377,080 miles one employe was killed. And this, mind you, does not take into consideration the vast number of empty cars handled at the same time. In other words, *one railroad employe was killed in a train accident for each hundred loaded cars transported a distance equal to 15 times around the world, or as far as from the earth to the moon and half way back.*

The record for 1914 is even better, as on the same basis of computation only one employe was killed in a train accident for every hundred loaded cars transported seventeen and a half times around the world. Therefore, let us not give way to hysterical reasoning or be misled by unanalyzed figures which tend to place railroads in an unfavorable and unpleasing light as to their accident records.

Another fact, in connection with these figures, indicating 594,359 persons injured and killed on the railroads in three years which must not be overlooked is that the majority of these injuries were of a more or less trivial character. We know that a little over 31,000 of the cases resulted fatally, of which 51 per cent were trespassers. Of the injuries every case is included where the employe lost more than three days from work, and injuries were reported as such which often consisted of only a bruise or scratch of the hand or some other minor injury. An examination of the New York Central record of injuries for a year indicates that only one out of every 227 employes injured was permanently disabled. During the seven months from July 1, 1914, to January 31, 1915, 131,000 reports of injuries to employes were made to the New York State Workmen's Compensation Commission. It is a significant fact that but something over 22,000 of these employes lost in excess of 14 days time as a result of injury.

Other interesting and enlightening facts may be gleaned from a further analysis of the Interstate Commerce Commission's figures. For instance, as already stated, the Commission's records indicate that but 10 per cent of all employe injury cases are due to collisions and derailments. Even the majority of these can be prevented only by greater care on the part of human beings involved in the accidents. The Interstate Commerce Commission employs expert investigators who make investigations into the causes of wrecks on railroads throughout the country. These investigations are exhaustive and often weeks and even months are consumed enquiring into every detail of a single train accident. During the 12 years 1902-1913 the Commission investigated through its own agents 1,570 train accidents, of which only 218 or 14 per cent were caused by defective track, equipment or appliances and 15 per cent were due to bad weather, outside agencies, unknown causes or unavoidable, while 1,120 or 71 per cent of the train accidents investigated by the Commission in the 12 years were found to have been due *to the fault of a member of the train crew, a despatcher, operator or some other employe.* The human element! It can never be effaced by all the safety appliances that can ever be invented and applied, nor by all the laws and regulations that can ever be passed and enforced. The one great, powerful factor which will curtail and reduce and which is already curtailing and reducing injuries and deaths to railroad and other industrial employes is co-operation between employers and employes to increase the carefulness of the employes, train them to *think* and to avoid *taking chances.* It is this spirit of co-operation that the railroads are spending time, money and effort to develop and foster. *It is this spirit of co-operation that will prevent more accidents than all the laws that were ever passed or ever will be passed intended to regulate the safety of modern transportation.*

That the railroads stand firmly upon the principle of safety as the first consideration is manifest in every phase of railroad development. Improvements are made in construction, equipment and the efficiency of their personnel on the basis of safety before cost. *Safety in railroading is as necessary to successful operation as is the roadbed itself—it is the doctrine upon which all the rules of operation and maintenance are founded—it is the creed upon which every railroad official builds his hope of successful advancement, for without safety to a reasonable degree a railroad could not exist and do business.* This is an age of competition. and it is worthy of note that prominent among other things the railroads of to-day vie with each other to attain the best and most favorable record in accident prevention. In view of all this, is it not reasonable to conclude that, if it were necessary to limit the number of cars in a train to insure their safe transportation over the road, the roads themselves would, for their own protection and to save their own property, adopt such regulation without legislative mandate? But there is not only no proof that the shortening of trains to 50 cars or less will lessen the number of accidents but there is conclusive evidence that increasing the cars in a train does not increase accidents. *On the New York Central Railroad the average number of cars per train increased 9 per cent in 1914 over 1913 notwithstanding which fact there was a decrease in every class of accident. There was a decrease of 73 per cent in road trainmen killed in through service and 39 per cent injured; of road trainmen in yards a decrease of 33 per cent killed and 42 per cent injured; of yard trainmen a decrease of 19 per cent killed and 39 per cent injured.* While a part of this decrease was brought about by safety educational work, it is partly attributable to the fact that with an *increase in the average number of cars per train there was a decrease of 18 per cent in the number of trains run.*

The following statement of death and injury cases in train accidents on all the railroads is taken from the Interstate Commerce Commission's records for the fiscal years 1913-1914:

	1913	1914	Decrease
Passengers killed	181	85	53%
Passengers injured ...	8662	7001	19%
Employes killed	557	452	19%
Employes injured	6905	4823	30%

Here is further substantial proof that long trains do not increase hazard but rather do they decrease hazard. There was in 1914, throughout the country, a decrease in all classes of injuries in train accidents and it is known that the length of trains did not decrease in that period but rather did it increase, while the number of trains operated on the roads in general decreased, thereby decreasing the hazard

The contention is made that with a shorter train there would be a better opportunity for the crew to make inspection of the running gear, brake rigging, etc., while stopping at points en route. In the first place, it should be clearly understood that on virtually every railroad to-day trains are made up in terminals by a yard crew, are inspected before leaving by car inspectors located at the terminal and then turned over to a road crew, which latter crew has nothing to do with the train until it is made up, inspected and ready to leave terminal. As far as the more lengthy trains are concerned, the only stops made are, as a rule, to take water or at meeting or passing points. The men in train crews, like all other employes, are expected to live up to the rules which govern their work and the length of a train, no matter whether long or short, can not be accepted as an excuse for not making such inspections as may be required of them.

The longer trains must necessarily travel at slower speed than the shorter ones so that possibility of accident to the long train is decreased thereby.

As to the contention that accidents would result from drawheads pulling out on longer trains; while it is true that drawheads do pull out occasionally, it is an occurrence not confined to long trains and the truth of the matter is when they do pull out it is usually when the train is starting and at a time when no accident would occur.

I do not wish to be understood as finding fault with the employes of railroads as a class. As has been pointed out, the safety work on railroads is a co-operative work. *The gratifying results which were obtained in the substantial accident reductions on railroads last year were largely brought about by the efforts of the men themselves who have grasped the spirit of the movement and attained an increased degree of thoughtfulness for personal safety.* The problem of preventing accidents is mainly a psychological one. The man factor is the big factor in this problem. Every man entering the railroad service must be instructed and then examined and finally put out on the road. Oftentimes these men, who make a good showing in their examinations and tests, have concealed somewhere in them bad traits of character or habits of carelessness which are not discovered until an accident happens. This is a risk that is increased with every new man employed on a road. To suddenly increase the employes to the number that would be necessary to man the many additional trains the passage of this law would require would mean another element of increased hazard instead of a decrease in hazards, because every green man that is employed is an experiment at the best. In fact, the real underlying object of this bill is to create jobs and increase employment unnecessarily.

For years the railroads have been expending vast sums of money in the interest of safety by improving equipment and conditions and installing safety appliances. This expense has included building steel cars, installing block signals, eliminating grade crossings and many other improvements for the benefit, not only of its employes and passengers, but the general public. To meet this continual growing expense, which, of course, is greatly augmented by increased wages and other items, it has been necessary for the railroads to adopt measures of the greatest economy and to secure the highest efficiency possible. As a general proposition the handling of a maximum amount of traffic at a minimum expense compatible with safe operation is an efficiency item of the greatest importance. If the railroads should now be required to limit the length of their trains to fifty cars, thereby multiplying the number of trains they must run, at a greatly increased expense for additional help, additional engines and additional fuel to run them, the money thus wasted would necessarily curtail the expenditures which would otherwise be made for real safety improvements.

In closing, let me reiterate that the railroads stand for safety as a basic principle and if this proposed law to limit the length of trains were in fact, as contended, a necessary measure to increase safety, there would be no strong opposition to it. But such contention is not sustained by facts. *There is no reasonable argument in support of the measure while, on the other hand, facts and statistics clearly and unmistakably demonstrate that such regulation as this proposed law imposes would increase rather than decrease the risk of injury.* In view of all of these circumstances and considering the earnest, studious and expert work that the railroad officials are doing in the best of faith to prevent accidents and with the highest possible motive—that of conserving human life—the passage of such a burdensome, unnecessary and actually injurious law as this "short-train" proposition is would be to inflict upon the railroads, upon the public and upon the employes of the railroads themselves, a colossal injustice, for which there can be no excuse or reasonable explanation offered in palliation.

The Automobile and the Grade Crossing Problem

WHEN the Long Island Railroad announced recently that it was going to employ vigorous tactics to bring home to the public the dangers of reckless automobile driving on Long Island, people in New York sat up and took notice. They were interested to see if the Long Island management was going to do something more than put up a few "Stop, Look and Listen" signs, and utter a feeble cry of "Safety First."

The railroad did put up signs—they were very unusual signs—and it cried "Safety First, Last and Always," but it did it in a different way—a way that had never been used before. It approached the safety proposition from an angle that hadn't been traveled before.

The Long Island Railroad has a grade crossing proposition to deal with that is unlike any other. Despite the fact that it has eliminated 305 crossings, a large number of which are within the limits of New York City, there still remain 631 places where the railroad crosses highways at grade. Possibly the crossings would not be such a source of trouble if Long Island was not a great summer playground. Every Sunday and on holidays it is thronged with pleasure seekers, no small number of whom travel in automobiles.

As long as these people, pleasure seekers and others, stop before driving over the railroad crossings on Long Island they are safe from accident at those crossings, but when they disregard all warning signs, gates and watchmen, and drive over the railroad tracks at breakneck speed—*and not infrequently through crossing gates let down to warn them of an approaching train*—they endanger their lives, the lives of the people on the trains, and, incidentally, cause the railroad great trouble and heavy expense—entirely apart from the cost of renewing the gates which they smash into splinters.

The frequency with which accidents have occurred at grade crossings on Long Island in the period from January, 1911, to May, 1915—about four and one-half years—is amazing. It is brought out in a report which, when shown to the general manager of the Long Island Railroad early in the spring, convinced him that the railroad would be compelled to do something this summer to protect the people against their own carelessness and recklessness, even in spite of themselves.

Since 1911 there have been some 507 accidents at grade crossings on Long Island as the result of recklessness on the part of automobilists, motorcyclists, carriage and wagon drivers. In that period 40 people were killed and 111 injured. Of the people killed, 24 were in automobiles, 12 in wagons and carriages and 4 on bicycles and motorcycles. Of the people injured, 67 were in automobiles, 26 in wagons and carriages and 18 included pedestrians, bicyclists and motorcyclists.

Fortunately, in 42 of the 507 grade crossing accidents nobody was injured.

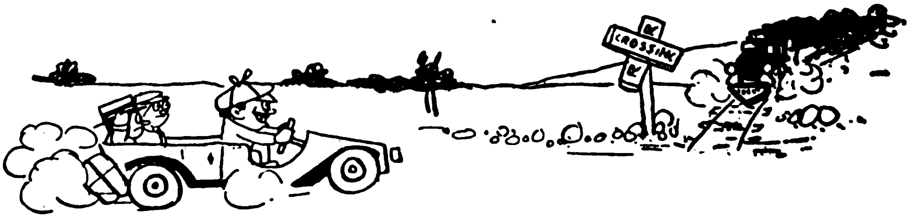
In 157 cases automobile and wagon drivers defiantly ran their machines and vehicles through lowered gates. In attempting to cross the tracks, 125 automobiles and 53 wagons were damaged. Some were struck by trains, while others sustained damage from hitting lowered gates.

With the advent of spring this year the Long Island Railroad started its campaign of education. Its object was to get people to exercise some degree of care when driving over railroad tracks at grade crossings.

It was first decided to place a number of large signs at all of the main roads leading to Long Island. Six huge signs, 60 feet long and 20 feet high, with white background and red and black letters, were put over the main roads on the railroad's bridges at overhead crossings, and arrangements were made to light these signs at night where possible.

An effort was made to word the signs in some way to get away from the stereotyped railroad sign which the public has become so accustomed to seeing and disregarding.

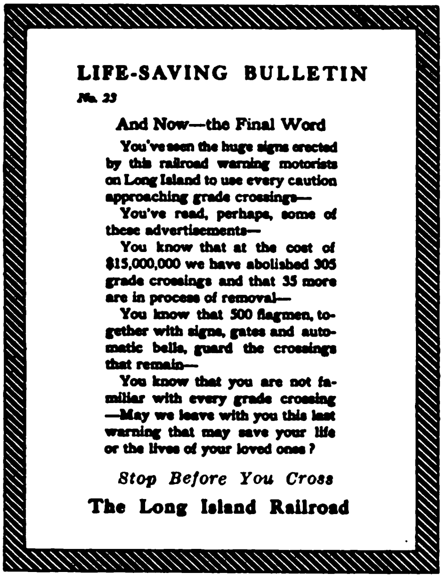
To supplement the road-signs, the railroad pub-



HE WOULD TRY ANYTHING ONCE.

There was a man who fancied
  That by driving good and fast
He'd get his car across the track
  Before the train came past.
He'd miss the engine by an inch,
  And make the train hands sore.
There *was* a man who fancied this;
  There isn't any more.

—By James Montague, in the New York American, July 9, 1915.



LIFE-SAVING BULLETIN

No. 23

And Now—the Final Word

You've seen the huge signs erected by this railroad warning motorists on Long Island to use every caution approaching grade crossings—

You've read, perhaps, some of these advertisements—

You know that at the cost of $15,000,000 we have abolished 305 grade crossings and that 35 more are in process of removal—

You know that 500 flagmen, together with signs, gates and automatic bells, guard the crossings that remain—

You know that you are not familiar with every grade crossing —May we leave with you this last warning that may save your life or the lives of your loved ones?

Stop Before You Cross

The Long Island Railroad

Last of the series of "Life Saving Bulletins" advertisements which the Long Island Railroad has been running in the newspapers of New York, Brooklyn and Long Island.

lished as advertisements in the newspapers a series of "Life Saving Bulletins." Twenty-three bulletins were prepared, and one is appearing every day in one of the papers, different papers in New York, Brooklyn and Long Island being used in turn. The series will be used possibly two or three times, to extend through the entire motoring season.

The "Life Saving Bulletins" are different from the average notices put in a newspaper by a railroad. They are in keeping with the whole campaign against reckless driving, the idea of which is to strike out on new lines, to *make* people notice the railroad's efforts to save their lives.

The first bulletin told briefly what the railroad was going to do. In it the company endeavored to establish a point of contact. It said:

"This is the first of a series of advertisements the sole purpose of which is to save life—your own life it may be or the lives of your family or friends.

"The automobile touring season is just beginning. Every year brings an increase in automobile accidents at grade crossings on Long Island. We have tried many ways to get people to be careful, but reckless driving is as common as ever. So we have decided to advertise the danger people run in driving automobiles over grade crossings regardless of caution signs

"This railroad has erected large new signs facing every main highway leading to Long Island urging the exercise of care. We shall keep putting up more signs wherever they can do any good. *Look for them.*

"Stop Before You Cross.

"The Long Island Railroad."

One bulletin of the series that indicated the spirit with which the railroad went into this unusual campaign read this way:

"'Safety First,' the slogan of progressive railroads the country over, may have lost its significance for you through countless repetition. *If we could write it in letters of fire above every grade crossing on Long Island we'd do it gladly.*

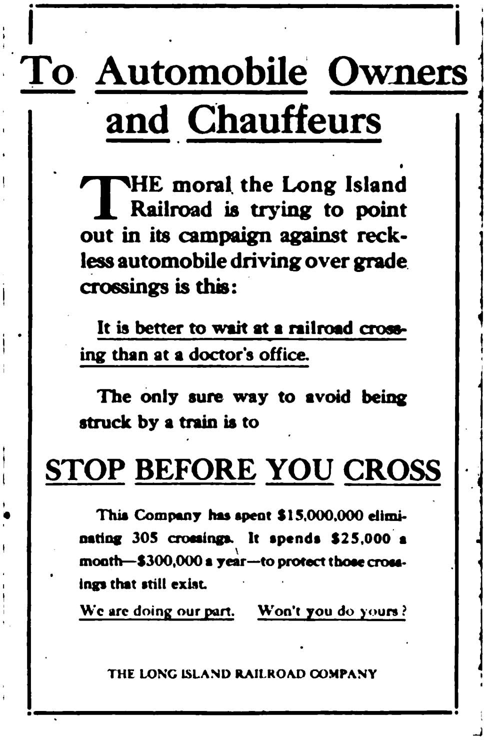
"As it is, we have erected signs, lighted at night, on the most traveled roads of the Island warning automobilists to take every precaution when approaching grade crossings.

"Stop Before You Cross.

"The Long Island Railroad."

Not the least effective of the methods employed by the railroad was a poster bulletin displayed in the stations on the Long Island Railroad and on the bulletin boards of Automobile Clubs, public garages and garages of large business houses. The latter co-operated earnestly with the railroad in its endeavor to cut down the number of accidents at grade crossings. At first only 500 of the posters were printed, but it was later necessary to double this number.

The latest innovation adopted by the Long Island has been the installation of heavy crossing gates, painted with daring black and white stripes. It is hard to believe, but the flimsy wooden crossing gates hold no fear for many motorists. They crash through them ahead of on-rushing trains, regardless of what may happen. The new gates will possibly stop some of them. They are made of heavy spars and are as strong almost as if they were iron. Indeed, iron poles would have been



To Automobile Owners and Chauffeurs

THE moral the Long Island Railroad is trying to point out in its campaign against reckless automobile driving over grade crossings is this:

It is better to wait at a railroad crossing than at a doctor's office.

The only sure way to avoid being struck by a train is to

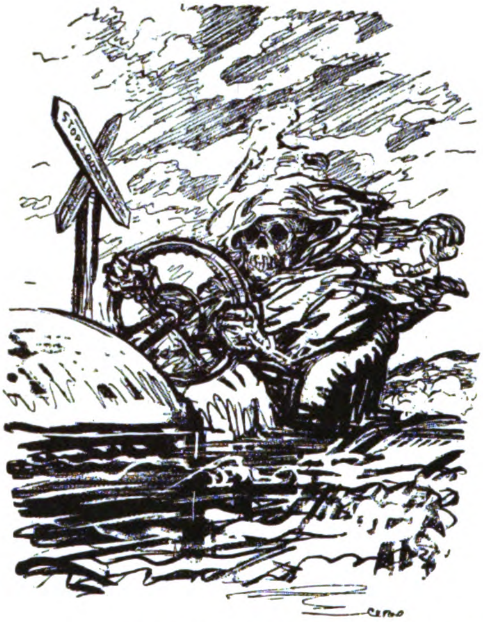
STOP BEFORE YOU CROSS

This Company has spent $15,000,000 eliminating 305 crossings. It spends $25,000 a month—$300,000 a year—to protect those crossings that still exist.

We are doing our part. Won't you do yours?

THE LONG ISLAND RAILROAD COMPANY

Nine Hundred Copies of this Bulletin have been posted at Long Island Railroad stations and in garages in New York, Brooklyn and Long Island.



—from the "N. Y. Sun," June 21, 1915

used had they been available at the time. Certainly they will not be broken as easily as the flimsy wooden gates generally in use. The black and white stripes with which the new gates have been painted are meant to be startling The first gates of this kind are installed at one of the crossings on the road leading up to Long Beach.

One of the first things the general manager of the Long Island Railroad did——and probably the most important—was to call personally on all of the New York and Brooklyn papers, and explain what his company was planning with its signs and posters and advertisements. The support of the newspapers was sought in this campaign of the railroad to save lives, and the publishers gave it ungrudgingly.

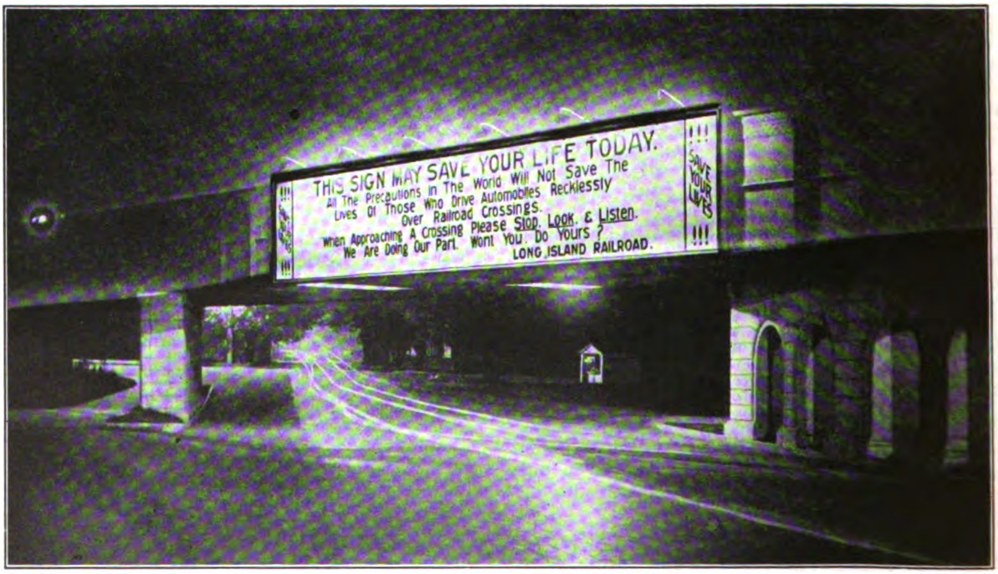
The Long Island Railroad is greatly indebted to the newspapers for their help in its campaign. Editorially and in their news columns the papers have commended the railroad's methods. They have issued their own warnings to motorists, telling them they had a responsibility they could not shirk.

The *Railroad Age Gazette*, commenting on the co-operation of the newspapers in the Long Island campaign, said:

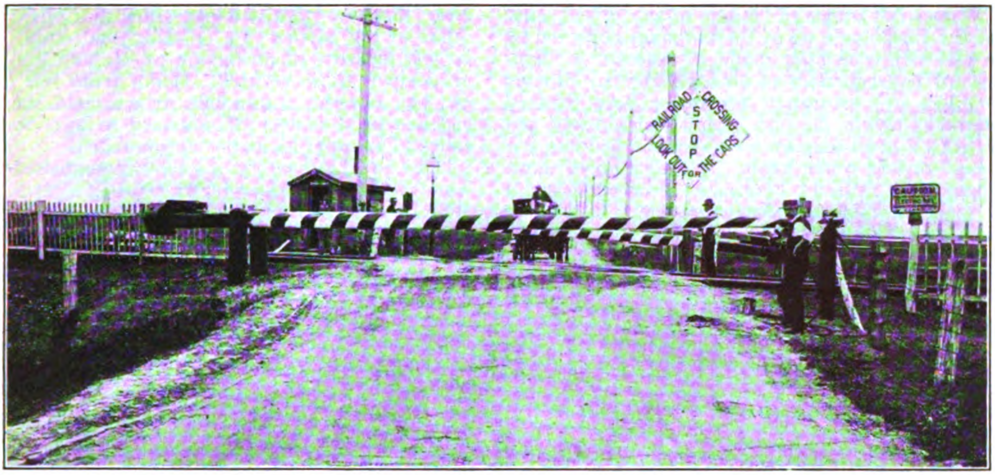
"One of the most remarkable things, however, about this campaign is the success which has been met with in getting the whole-hearted co-operation of the newspapers published in New York. Every paper of any size is giving its support either through a description or picture of the signs which the Long Island is putting up, or by such a description and editorial comment. Such unanimous support as this is interesting and encouraging. * * * * After a great deal of thought and care had been given to the campaign, Mr. McCrea gave up two days of his own time entirely to talking over with newspaper editors the aims of his company and the methods which were to be used to further them. It was probably more nearly a week than two days, * * * * but it has already proved to be time well spent."

The leaven seems to be working. So far this summer there has not been an accident that has resulted in a loss of life. In fact, there has only been one serious accident since the railroad started its campaign against reckless driving over grade crossings.

Many other railroads in various sections of the


THIS SIGN MAY SAVE YOUR LIFE TODAY.
All The Precautions in The World Will Not Save The
Lives Of Those Who Drive Automobiles Recklessly
Over Railroad Crossings.
When Approaching A Crossing Please Stop, Look, & Listen.
We Are Doing Our Part. Wont You. Do Yours ?
LONG ISLAND RAILROAD.
!!!
SAVE YOUR LIVES
!!!

How the Long Island Railroad Lights its Signs at Night. This Picture was Taken at 10 P. M. The White Streaks which Look Like Automobile Tracks were Made by the Reflection from Strong Headlights of Motor Cars which Passed while the Exposure was being Made.



Experimental Gates Employed by the Long Island Railroad to Check Reckless Automobile Drivers. They are Made of Heavy Wooden Spars the Size of Large Telephone Poles and are Painted in Black and White Stripes to Make them as Conspicuous as Possible.

country have been forced to consider the same problem owing to the apparent growing recklessness on the part of automobile drivers. Unusual steps are being taken to indicate the danger into which many of these drivers so recklessly run and a comprehensive effort is being made to educate the automobile public so that they will adopt a habit of greater carefulness when employing railway crossings. The following letter recently distributed broadcast in circular form among automobile drivers in the South shows what a strong effort one big system is making to overcome these accidents:

"Southern Railway Company

"Office of the President.

"STOP, LOOK AND LISTEN

"THE DANGER OF AUTOMOBILES AT GRADE CROSSINGS.

"Washington, D. C., July 1, 1915.

"To the Public:

"The automobile has greatly increased the comfort and convenience of life and it has been an important factor in the improvement of country highways and so has contributed to the progress of civilization of our time, but, just as the railroad did when it revolutionized commerce, the automobile has introduced new social complications and new risks, moral as well as physical.

"The American people are said to be characteristically reckless of human life, and perhaps in nothing is this statement more justified at the moment than in relation to the use of automobiles—not even the railroads. My particular interest in the question is, where my public responsibility lies, in the combination of the two—in the accidents which occur to automobiles and their occupants where highways cross railways at grade: and this is a question of sufficient importance to warrant the attention of every thinking man in the South. The following table shows the appalling record of such accidents on lines operated by Southen Railway Company in the South duing the year ended June 30, 1915:

	Number of Accidents	Fatal Injuries	Personal Injuries	Automobiles damaged or demolished
Alabama	10	0	1	10
Georgia	6	2	10	6
North Carolina	27	6	21	27
South Carolina	14	2	17	14
Tennessee	5	0	8	5
Virginia	7	2	1	7
Total	69	12	58	69

"Without seeking to avoid just responsibility for what the officers or employes of the railroad do or omit, but recalling that a railroad employe whose carelessness causes an accident is, in the public interest, subject to discipline which affects his livelihood, it is probably fair to say that a large proportion of these accidents happened solely through the carelessness of the drivers of automobiles, or their lack of experience in dealing with vehicles at high speed. There are among them also well authenticated cases of deliberate assumption of risk by the drivers of automobiles from pure love of excitement and speed, evidenced by racing with trains and seeking the thrill of a narrow escape. Our enginemen report such occurrences daily. If fortunately they are without fatal consequences in the great majority of cases, they are always paid for by a heavy strain on the nerves of all concerned, particularly those of the locomotive engineer, who maintains speed from duty and not for fun. It is not too much to claim for the locomotive engineer a larger equipment of experience and a greater habit of precaution than the average automobile driver. As a class the locomotive engineers are sober, steady and conservative men of long experience in meeting and avoiding risks, for theirs is a dangerous occupation. Their every effort of character, of instruction and of interest is to avoid an accident. *Most of the accidents to automobiles at railway grade crossings could be avoided if there was the same restraint of experience and intention at the wheel of the automobile as at the throttle of the locomotive.*

"It does not suffice the public in any moral sense that the fund made up of the revenues collected by the railroad is usually made to respond in damages for consequences of such accidents. Suicide to collect life insurance has never been deemed honorable, while no one would deliberately sell the life of a mother or wife, son or brother for money; on the other hand, the collection of damages out of railroad revenues, as a punishment for an avoidable accident, when there can be no real compensation, is an economic waste; it punishes the public more than it punishes the stockholders, as it deprives the public by exactly the amount of the damages of the ability of the railroad to provide additional permanent facilities for the use or convenience and safety of the public. Given the progressive policy of Southern Railway Company to make such improvements to the extent of its ability, it is of interest to note that, in the last year a dividend was paid by the company, 3.80 cents of every dollar of revenue collected from the public went in payment of damages of all kinds, practically the same amount, 3.88 cents, went to the stockholders, while only thirteen hundredths of one cent of each dollar of revenue could be applied on permanent improvements. Such other improvements as were made were necessarily charged to new capital, thereby increasing the demands on the fund in which the public has so vital an interest. It would be the pleasure of the management always to apply as much of the revenues on permanent improvements as on dividends, if that was possible. There is, then, a basis of interest as well as of morals for co-operation between the public and the railroads to prevent the recurrence of these tragedies.

"With a deep sense of the responsibility of management in this matter and pledging this company to do everything in its power which is reasonable and consistent with the functions for which it was chartered, I appeal to the public generally for such co-operation in avoiding these serious and distressing accidents. In practically all cases they can be, and in most cases are, readily and easily avoided by the automobile driver acting upon the familiar warning to stop, look and listen at railway crossings. While familiarity with the crossing sign-posts and the regular schedules of trains may breed contempt of danger, surely every one of us when using a highway can afford to sacrifice enough of his time and his pride of opinion to have a practical assurance of safety. On the other hand, the demands of commerce and of public transportation do not permit a railroad to stop all its trains at all highway crossings: if that was possible it would be cheaper for the railroad to do so than to pay the damages. It is clear, however, that it is necessary that one or the other of the parties to a crossing shall stop if the largest measure of protection of life and limb and property is to be secured. If not from self interest, can not the automobile driver yield the precedence as a matter of courtesy to age, for the railroad is older than the automobile!

"The ideal of safety will be accomplished only when all grade crossings of railroads are separated. In this respect Southern Railway Company is doing something every year and as much as its resources and other obligations make possible: indeed, it may be claimed that the company is, speaking generally, making progress more rapidly than most municipalities which have an obligation in the premises: but by co-operation of municipalities and railroads many dangerous crossings have been eliminated throughout the South, and more will be every year. Furthermore, on every bit of construction work of Southern Railway Company now in progress, or recently completed, involving the relocation or double tracking of line (nearly *four million dollars* has been spent on such work during the past year), provision has been made at large additional expense to separate all important highway crossings of the revised line, wherever physically practicable, and this policy will be continued for the future.

"Given the history of our transportation and highway systems and the enormous cost of adjusting them to modern conditions, the elimination of grade crossings is and in the very nature of the problem must be a gradual development with the growth of population and wealth, but, meanwhile, good judgment on the part of all concerned can do much to anticipate the benefits of the admittedly desirable expenditure of large sums of money. The same sober sense of responsibility for life on the part of automobile drivers which actuates most locomotive engineers, and in addition the willingness of the automobile driver in such a high interest to subordinate his time and convenience to that of the greater number represented by a railroad train, can check a waste of life and limb and property which is now increasing every year

"To this end I appeal confidently for the counsel of every responsible man and woman in the South, whether or not he or she drives an automobile. Words of caution and common sense around the family dinner table can have more influence and can save more lives at railway grade crossings than all the warning whistles ever blown by a locomotive engineer.

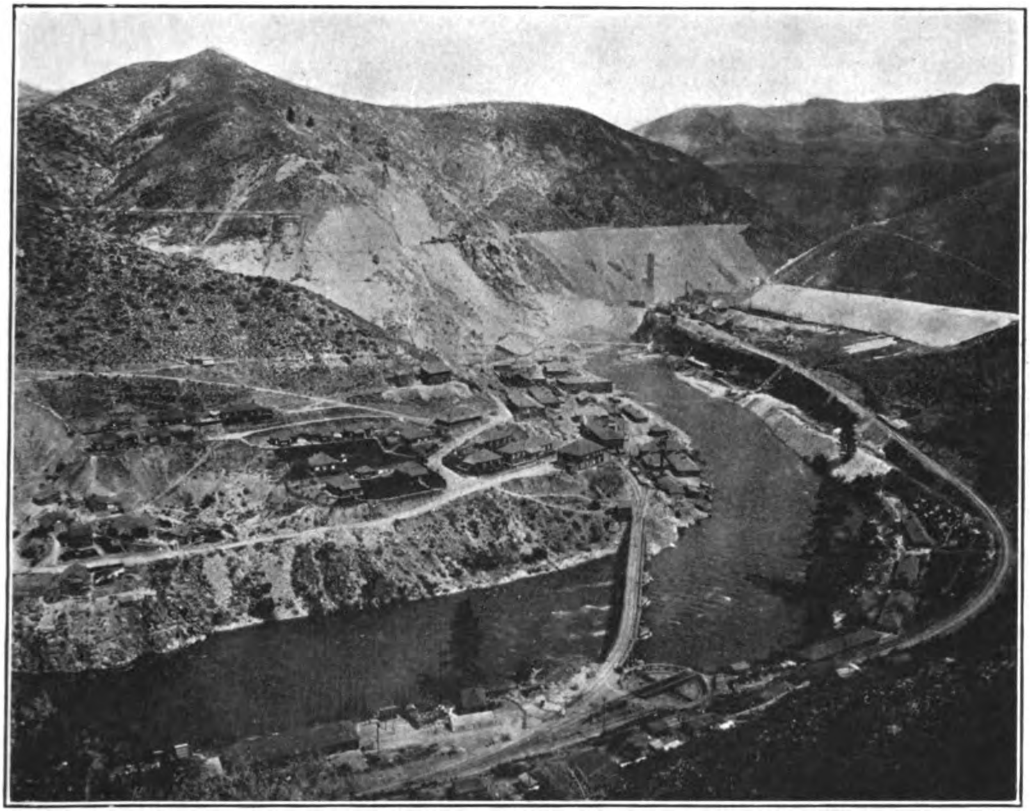
"FAIRFAX HARRISON,
"President."

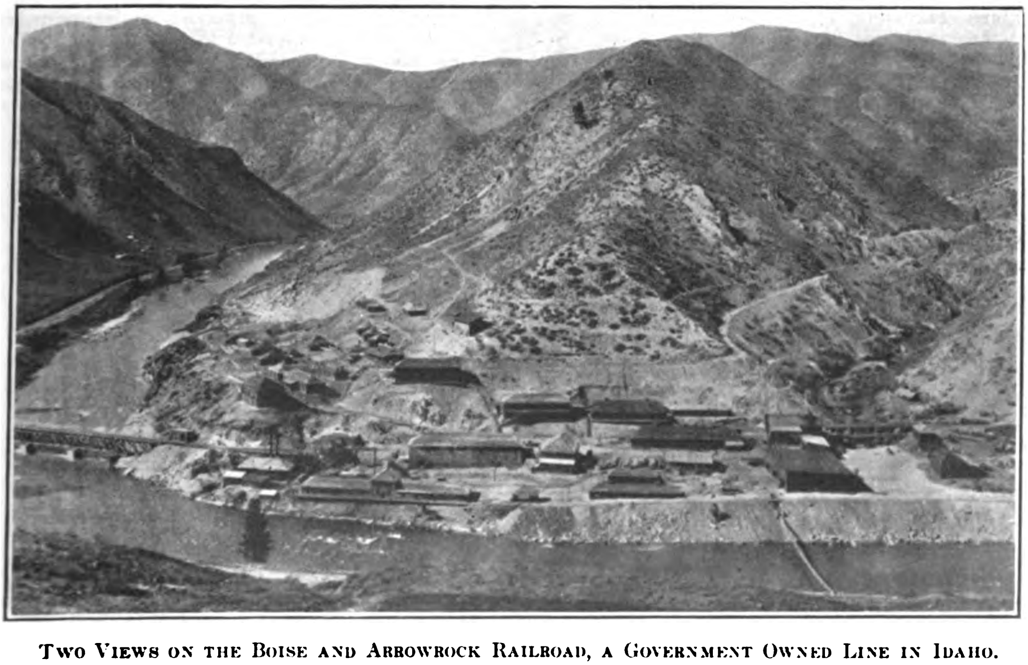
Government Railroading

A Description of the Boise and Arrowrock Railroad

By A. P. CONNOR.

MANY railroad men have the impression that the United States Government is too busy regulating railroad corporations and enlivening their existence by referring to mail carrying contracts and other matters that have a vote pulling influence, to go into the railroad business itself. However, such is not strictly the case, for the Government has at least four railroads that it has an ownership control over. These are the Panama Railroad, The Boise and Arrowrock Railroad, The Yuma Valley Railroad, and (pending) the Alaska Northern Railroad. Each of these railroads have different features. The Panama Railroad offers many details that would make interesting data for discussion in the matter of governmental ownership of railroads. In fact, there are many features that might make a real railroad man stand aghast at the methods and policies employed in connection with this road, particularly in the matter of expense. Many "na-





TWO VIEWS ON THE BOISE AND ARROWROCK RAILROAD, A GOVERNMENT OWNED LINE IN IDAHO.

Construction Work on the Boise and Arrowrock Railroad.

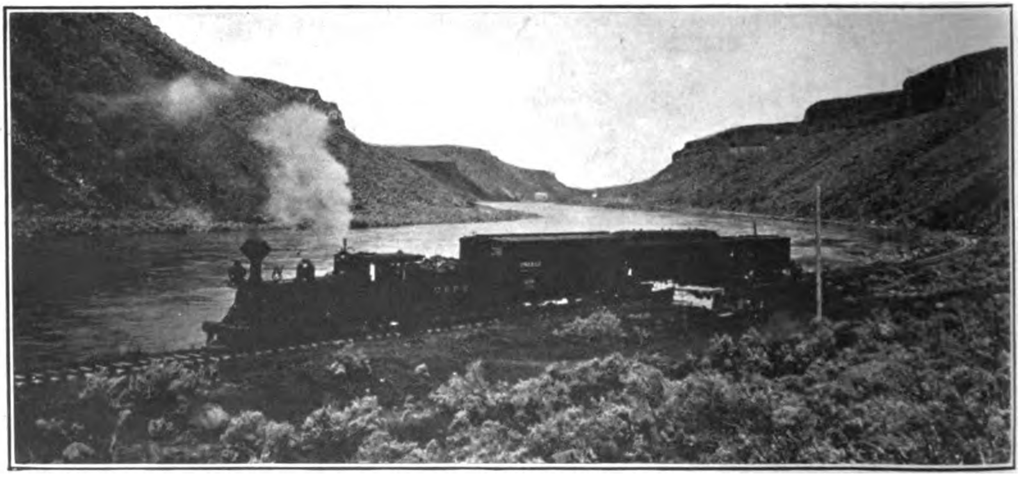
tural difficulties" arose in connection with this railroad that might in ordinary practice and parlance be deemed blunders. Any excuse that increased the cost of construction and the time for working on the construction of the railroad, seemed to have great weight and usually won out. In one case it was considered necessary to re-run the whole length of the railroad on the other side of the Canal, in another to place electric feeders underground the whole length, in another to double on all apparatus, and so on. At the same time, the railroad rates were high, so that exponents of the cause of Government ownership would find but little consolation in that phase. This railroad also runs or operates ships in connection with the road, in spite of legislation to the contrary. Another feature concerning the Panama Railroad is, that it is operated on a private scale in one sense and under the Government in another. The directors of the railroad are taken from the cabinet officers and other officials.

The Boise and Arrowrock Railroad is a railroad which is constructed on a different system to the Panama Railroad. It is considered the only owned and operated by the Government railroad in the United States. The Yuma Valley Railroad is operated by the Santa Fe system under a special arrangement.

The Boise and Arrowrock Railroad is situated in Idaho in the vicinity of Boise and adjacent to the terminus of the Oregon Short Line. Its length is nineteen miles and it terminates at the Arrowrock Dam—the large dam now being constructed on the Boise River about 20 miles above Boise, to be used in connection with the large irrigation project of the Reclamation Service.

The railroad uses standard gauge and has a maximum grade of 1.5 per cent on the main line, and 3 per cent on spur tracks.

The road is provided with three wooden truss bridges along the main line, one being 442 feet, another 166 feet and the third near the dam site, 306



Nature of Equipment of Boise and Arrowrock Railroad.

feet long. Its construction cost $20,000 per mile. The cost of operating the road is about $2.34 a ton-mile. The rolling stock consists mainly of two locomotives, two passenger cars, four flat cars, three box cars, and several hand cars, costing about $35,000.

The scenery on the railroad is attractive and that in connection with the publicity given to the Arrowrock Dam brings thousands of visitors to use the railroad. It may be added that the ultimate disposal of the railroad has not been decided upon, but it is belived that it will either be discarded or sold after the dam and connecting construction is completed.

The Furka Railway—The Connecting Link Between the Rhone and the Rhine

By Marie Widmer

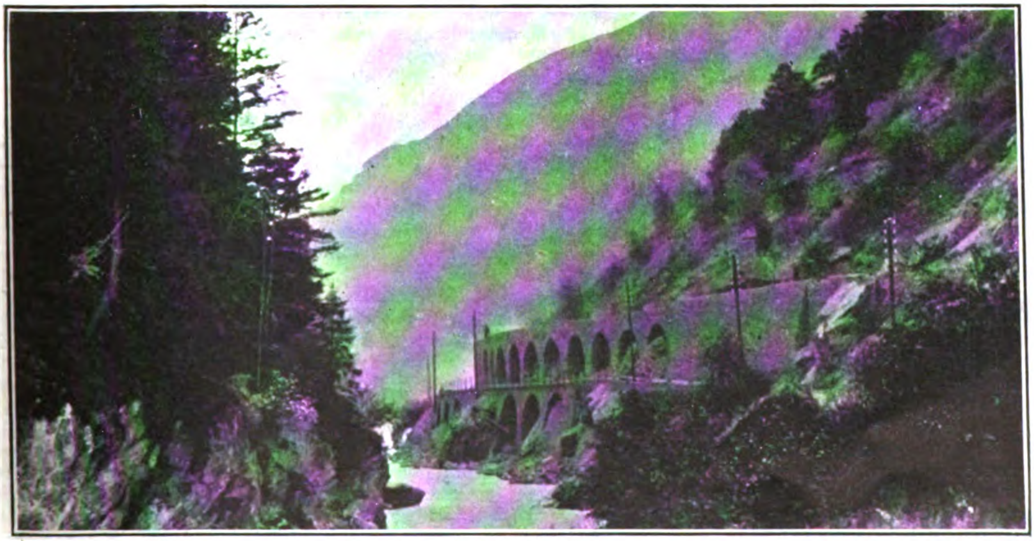
WHEN the Simplon Line was inaugurated in 1906, there was probably no other city in the Rhone Valley which gained more importance through this feat than Brig, a delightfully quaint community at the junction of the Simplon and Furka Post Routes. A few years later, i. e., in the summer of 1913 a second gigantic undertaking, the celebrated Lotschberg Railway, opened another new era for this fortunate district and where it formerly required a long railway journey via Montreux and Spiez to reach Interlaken, or a diligence drive via Gletsch to Meiringen, followed by a train and boat trip to Interlaken, this modern Alpine railway takes a short cut through the huge massive of the Bernese Alps, to Kanderstag, Spiez, Berne and Interlaken.

The Simplon Railway forms the international highway from the Lake of Geneva and the Rhone Valley to Italy and vice versa and the Lotschberg Line, connecting with the Simplon route at Brig, has brought the Rhone Valley ond the Bernese Oberland in direct communication. There remained now one other Alpine Pass, the Furka, which had no train service and which in a distance of 42½ miles, runs from Brig to Andermatt, at the foot of the Oberalp Pass. From Andermatt, which will shortly be connected with Goschenen, on the Gothard Line, by a 2½ miles long electric railway, running close to the road through the Schollenen, the Oberalp Pass practically a continuation of the Furka road, leads to Disentis, an ancient monastic - village with recently discovered radio-active mineral springs—a distance of 18 miles.

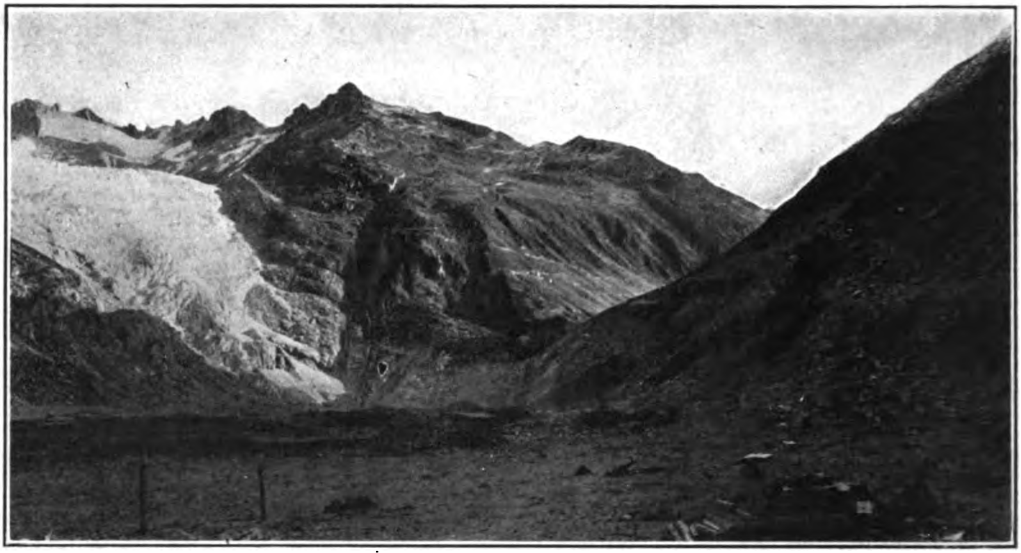
From Disentis the Rhaetian Railway affords direct communication with all the noted Grisons resorts.

To cover this entire distance of 60½ miles requires a diligence journey of one day between Brig and Andermatt, and 4½ hours between Andermatt and Disentis, a fascinating drive for the tourist who is fortunate enough to be able to travel with leisure, but often out of the question for those who are somewhat rushed for time

The construction of a railway which would form the connecting link between Brig and Disentis came therefore up for discussion a number of years ago and the construction of the line was started in 1911. On June 30, 1914, the inauguration of the first section Brig-Gletsch took place, but four weeks later, when the railroad was actually ready for traffic, the European war broke out and in view of the completely reversed conditions it was decided that the line would only be opened for the summer season 1915. The trip by rail from Brig to Gletsch takes two hours; the sec-



Bridge on the Furka Railway, Switzerland, the Connecting Link Between the Rhone and the Rhine.



THE RUGGED CHARACTER OF THE COUNTRY THROUGH WHICH THE FURKA RAILWAY HAS BEEN BUILT.

tions Gletsch-Andermatt, Andermatt-Goschenen and Andermatt-Disentis, which will also be open for traffic in the near future require 1½ hours, ½ hour and 1½ hours respectively. The new Alpine railway will thus cover the total distance of 60½ miles in five hours.

The railway has steam traction. It is a narrow gauge line with rack and pinion sections and possesses an extraordinary number of interesting features in an engineering point of view. There are over 50 viaducts, bridges and galleries; 7 tunnels and 5 lopp tunnels. The maximum gradient is 110 per cent and the total length of the rack and pinion sections is 19½ miles. It is estimated that the cost of construction for the line Brig-Gletsch-Disentis is over $7,600,000.

The American Commerce Association

Note.—This new Department of the Ralway World is devoted to the interests of the American Commerce Association, the national organization of traffic men, for traffic men, by traffic men. The object of the organization is to set standards of efficiency for employers and employes, as it is believed that the present tremendous waste of time and money in traffic work, demands employment of trained men. The Railway World is in entire sympathy with this movement, and it believes it will not only develop more harmonius relations between those who employ and those who operate the railways, but will serve to more fully inform the business men of the country regarding rate matters and thus enable them to more intelligently and economically employ our transportation agencies. This new department in the Railway World, will discuss matters pertaining to traffic efficiency and the Traffic Efficiency Clubs of the Association, located in the various cities of the country. Under this heading practical railroad and industrial traffic matters will also be discussed.

The Development of the Freight Rate Structure.

THERE are many factors which enter into the making of freight rates which are not apparent until the task of making rates confronts you as a real concrete problem. It is not the purpose, at this point, to go into detail as to the methods used in constructing or making freight rates, but to simply point out some factors which must be considered which will assist to a more thorough understanding of the reason for the traffic territories, rate zones, and basing or rate construction points.

With our present knowledge of the cost of transporting any unit of freight between two points, it is not possible to establish a freight charge on any given shipment on an absolutely scientific basis. There are so many considerations and such an endless variety of circumstances and conditions which affect the cost of transportation, that it is imposible from observation experience, or from calculation, to formulate general rules, or establish workable theories for the making of absolute freight rates.

Transportation is a public service. Two classes of people must be served and benefited. First, the shippers, and second, those who invest their money in the transportation lines. The freight rates must be low enough, after paying a reasonable dividend, to insure the greatest profit to the shipper and the lowest purchase price to the consumer and enable the shipper to compete in various territories.

If it were possible to determine the cost of shipping any unit of freight between two points, the question of making freight rates would not be difficult of solution. The actual transportation cost of any unit of freight, however, can not be ascertained precisely. Moreover, it can not be estimated in advance, as the volume of traffic which will be offered for shipment over any given line, during any particular period, can not be actually known. For these reasons it is impossible to accurately estimate in advance the actual earnings of any particular line of railroad, either on total tonnage or specific shipments.

If the freight rate is too high, the selling price of goods shipped may be too high, and therefore the traffic can not move freely. If the freight rate is too low, the common carrier can not maintain facilities for transporting the goods to market, in which case the shipper, carrier and consignee will suffer, involving a loss to all concerned. The freight rates, therefore, must be established on some level which can only be determined by analyzing certain circumstances and conditions, governing the movement of the traffic.

In many cases the railroad companies have little control over their freight rates. They usually adjust their charges to conditions and circumstances. In a zone of great traffic density, however, the freight charge, which may permit the traffic to move, might be very much greater than the amount sufficient to produce a reasonable earning on the railroad investment. Any advance in rates above the point which will pay a reasonable revenue to the carrier must come out of either the profits of the shippers or be added to the selling price of the goods and paid by the consumer.

Government regulation of freight rates tends toward stability, and stability is necessary before you can establish the lowest possible rates which will permit the traffic to move freely, and at the same time pay a reasonable return on the money invested in the transportation companies.

There are many difficulties attending the making of freight rates in the various territories of the country, all of which are characterized by many traffic differences. None of the duties placed upon the Interstate Commerce Commission by the Act to Regulate Commerce are more perplexing and difficult than those of determining what are reasonable und unreasonable rates. The question of reasonableness of rates involves so many consideration, and it is affected by so many circumstances and conditions which at first seem foreign to the subject, that it is quite impossible to deal with it on a purely mathematical basis, or establish any principles without a consciousness that no conclusion which may be reached can be demonstrated as absolutely correct. It has been shown that to take each class of freight by itself and measure the reasonableness of charges by reference to the cost of transporting that particular class, though it might seem abstractly just, would neither be practicable for the carriers nor consistent with public interest.

The difficulties here referred to, of passing upon the question of reasonableness of rates, are doubtless very great to both the shipper and the carrier, but how much greater must be the difficulties to the carrier in making their freight tariffs? The rates on freight must be sufficiently low to result in the development of the largest amount of traffic, and at the same time they must be high enough to produce sufficient revenue to pay for the cost of maintenance and operation of the roads and a reasonable interest on the investment.

The rates must in no case exceed the value, to the public, of the service rendered, which is determined by commercial laws, by competition of products with products, by the value of the article of freight at the place of production or manufacture and the places of consumption, and by other circumstances and conditions. The rates must be strictly in compliance with the laws of the States, and with the Act to Regulate Commerce. They must comply with the Second section of the Act, which prohibits unjust discrimination against persons or corporations; they must comply with the Third section of the Act, which provides that there shall be no undue or unreasonable preference or advantage given to any particular person, company, firm, corporation or locality, or to any particular description of traffic, in any respect whatsoever, and they must also comply with the Fourth section of the Act, which declares that it shall be unlawful to charge or receive any greater compensation in the aggregate for the transportation of property, for a shorter than for a longer distance over the same line in the same direction, except by approval of the Interstate Commerce Commission.

It might be apropos to state, if it were possible, what is permitted rather than the prohibitions. Rate-making might be termed the science of construing negative provisions.

It is not sufficient that the rates be just and reasonable in and of themselves. They must also be relatively reasonable. They may be both reasonable in and of themselves, and relatively reasonable, and yet in conflict with the long and short haul clause of the Act.

Fourth section complications are many, and it will become apparent, if, in order to remove the difficulty, the rates to and from intermediate points are reduced, that the loss of revenue may be so great that the railroad companies may find themselves unable to pay the cost of maintaining and operating their roads, as the local traffic is so diversified and of such a character as to require much handling by train crews at above the average cost of freight handling and decidedly more than the traffic can bear.

The establishment of equitable freight rates on the articles of commerce offered for shipment requires the makers of frieght rates to familiarize themselves with the various commercial and industrial conditions in the country which directly affect both the carriers and the shippers. It would be interesting to trace the development of rate-making from the simple rate sheets of early days to the highly complex freight tariffs with the elaborate classifications, embracing thousands of articles, and note the influence and effect of surrounding circumstances that necessitated, from time to time, modifications and additions.

The cost of the movement of freight is a small portion of the total cost of transportation. In fact, it is claimed that the constant or fixed expense of the railroad is about sixty per cent. of the revenue. The largest portion of the cost, therefore, is fixed and must be maintained without regard to the volume of traffic. Most of the questions involved in the fixing and adjusting of freight rates are of a commercial and economic character, and therefore subjected to commercial and economic laws.

One of the most important, and in many cases the controlling factor in fixing rates, is competition. This competition is between carriers by rail, competition between rail and water carriers, competition with water lines, competition between markets and competition of products with other products.

Competition is the act of striving for something that is sought for by another at the same time. To-day there are but two kinds of competition—direct and indirect. Before government regulation there were two kinds of competition—legitimate or healthy competition, which is the life of trade, and illegitimate or unhealthy competition, which resulted in the ruin of trade and the ruin of all engaged in the practice.

Illegitimate competition between carriers resulted from a struggle on the part of one to get more than its share of competitive traffic, by means not now considered ethical, resulting in a temporary benefit to it and ruin to the other. That kind of competition has resulted in rate wars. The principal weapon used in a "rate war" was a radical reduction in rates. In many cases the competitors were forced into bankruptcy. This, however, did not mean victory for the survivor, because at the close of the controversy the main issues between them were unsettled. The law of evolution, which decrees "that the fittest shall survive," can not apply to competition between railroads, simply because the railroad renders a public service on a non-competitive basis as far as rates and service are concerned.

The railroads of to-day do not engage in rate wars. After the construction and equipment of their roads they have a large constant expense to be maintained, and are therefore induced to secure the largest possible tonnage. The extremely low rates, caused by rate wars, deplete the revenues of the railroads and necessitate retrenchment and a consequent reduction of wages of employees. Manufacturing interests connected with railroads also are compelled to suffer by reduction of expenses forced upon railroads by diminished earnings. The most serious evils that result from unrestrained competition fall upon mercantile communities whose best interests require that rates of transportation shall be just, reasonable and non-discriminatory. Fluctuating rates are very injurious to the development of commerce. The Interstate Commerce Law requires a public carrier to furnish to all people just and reasonable rates, but under free competition. It is difficult for railroads to fully comply with the law, as from their very nature they are a monopoly.

Competition between railroads differs materially from commercial competition. The effect of the competition between industries is more or less local and confined only to certain branches of commerce. Competition between railroads affects all branches, and even the entire commerce and the industries, of a large section of the country. Owing to the interdependence of rates, rate wars between two railroads of one section may involve many other railroads, even though these sections are remote. It will be seen that there are so many factors entering into the making of rates that the problem becomes very intricate.

It is believed, by the best authorities, that if each carrier were left alone to make its rates and charges, may be different from those of all the others for the same services, there could be no uniformity or stability of rates, and there would be constant changes and, of course, discrimination of all kinds. Experience has pointed out that the important work of making rates is best accomplished by associations and committees representing the various carriers. This condition has given rise to the various traffic associations.

The country, for the purpose of rate-making, is divided into various traffic territories. Within these teritories are points known as "Basing Points," which serve as a base upon which rates are computed to other points. The committees and associations, composed of representatives of the railroads having jurisdiction over the various traffic territories, determine how rates shall be made, and what points shall be used as points on which to base rates.

Rates from Central Freight Association Territory eastbound are based upon the Chicago-New York rates. To Boston the rates are the following: differentials 7-6-5-4-3-2, over the New York rate. Philadelphia takes 2 cents under New York, and Baltimore 3 cents under New York, on all classes and commodities.

The railroads endeavor to "line up their tariffs," as they say in railroad circles, so as not to conflict with the law, and with each other. However, owing to the demands for a lower rate upon particular traffic, due to commercial conditions, changes in rates are put into effect, through the application of which the rates to base points are sometimes entirely altered, and as a natural consequence the rates related thereto or basing thereon are also modified correspondingly.

In making tariffs, basing points in the various territories are used, and other rates are based thereon. After these rates have been published for a time they become a permanent basis for freight charges, and all other rates are affected by their variations. In the issuance of tariffs the rates are usually carefully compiled, with due regard to avoiding conflict with the law and by taking into consideration all factors, such as mileage, competition, etc. These tariffs, when lawfully on file with the Interstate Commerce Commission, then become the recognized basis for transportation charges.

The tariffs are broad and comprehensive, and are the foundation of railroad freight charges. Hardly are these rates published, however, before the demands of competition, the demands of certain interests for lower rates, and the possible discovery that discrimination exists on some line of traffic, or against some locality, cause an adjustment of the rates, which adjustment causes still other discriminations, and thus the process of changing rates to meet commercial, industrial and transportation conditions goes on, making the problem more and more intricate.

The function of the freight rate committees and associations is to establish freight rates on the articles which have been classified by the classification committees, or to make special rates on certain articles and removing them entirely from the classification when traffic conditions demand it. Such special rates are known as commodity rates. The establishment of Traffic Territories, Rate Zones, and Committees which have jurisdiction over them, is the result of an attempt on the part of the railroad to adjust rates to meet all of the various industrial, traffic and commercial conditions of the country in a business-like and economic manner.

For the purpose of establishing just and equitable rates and avoiding a multiplicity of rates applicable on the same traffic the various freight traffic associations of the country have been organized, each having jurisdiction over a certain section of the country.

It is evident that the transportation service of the carriers should be rendered to the public as a unit. There should be uniformity in the service, and it should be developed to the highest degree of perfection. This can only be attained when it is possible for shippers to offer their goods at any one point in the country, and have them transported to any other point, with the least expense and with the greatest convenience, notwithstanding that the shipments may pass over the lines of many different carriers. In order to perfect this complete service it is necessary that the various carriers coöperate with each other This is best accomplished through traffic associations.

The conditions which existed before the traffic associations were organized is well brought out in the resolutions adopted by one of the early traffic associations, as follows:

"Whereas, The ruinous competition now existing between railroad lines represents the demand for the speedy change and a prompt return to remunerative rates of transportation; and

"Whereas, The disreputable custom that has, in the past few years, grown up of paying bribes to obtain business over competing lines, has so demoralized railway management and the communities through which the railways operate, that a prompt and radical change is called for by every consideration of honor and honesty; therefore, be it

"Resolved, That standard rates of transportation shall be established and maintained, by which stockholders may enjoy with their patrons the benefits created by their respective lines; also, may it be

"Resolved, That all kinds of bribery and corruption in the form of drawbacks and rebates, paid to obtain patronage, shall, in the future, be regarded as disreputable, dishonest and unbecoming of railroad management, demoralizing the railroad employees and their patrons; and we hereby pledge ourselves and our companies to discontinue business relations with railroad companies or individuals, that shall continue these disreputable practices."

The history and development of the various traffic associations, which have resulted in the establishment of most equitable rates for shippers and carriers, is interesting and educational, but it is not necessary for us to take it up in this work. During the last few years the traffic of the various railroads has increased so greatly that carriers have been compelled to give special attention to rendering the best possible service to shippers. In order to take care of the constantly increasing demands upon the carriers for a higher organized traffic department, associations, freight committees, and bureaus have been organized and developed, to meet the various demands which changing conditions have placed upon the carriers.

Annual Meeting of Freight Claim Association

The Twenty-fourth Annual Session of The Freight Claim Association convened at 10 o'clock A. M., Wednesday, June 16th, 1915, in the "Red Room" of the Hotel LaSalle, Chicago, Illinois, President J. W. Newell, Auditor Freight Accounts, Chicago, Burlington & Quincy Railroad, presiding.

President's Address.

"It seems as though now is an opportune time to look into the origin of this Association; to inquire into its purpose and accomplishments. Any organization that has grown from a membership of 105 in 1892 to a membership of 450 in 1915 must have been a faithful servant.

"The Freight Claim Association is the result of the consolidation of the Claim Agents' Association of the Eastern, Middle and Southern States and the Freight Claim Agents' Association of the West. The Claim Agents' Association of the Eastern, Middle and Southern States was organized in 1886 and the Freight Claim Agents' Association of the West was organized in 1890.

"The primary object in forming these Associations was to correct an intolerable situation. The early experiences of each told them that in order to apportion joint liabilities promptly and fairly the same rules and same plan of handling must be in effect over the entire country. They realized at that early date that the Association must take Operating and Traffic conditions as they found them and make rules of apportionment that would be fair and just to all. With this idea in view, the two Associations held a joint meeting here in Chicago, on March 3rd, 1892, and The Freight Claim Association came into existence.

"The ideas of these pioneers, it seems, were expressed by President Howell in his letter of August 12, 1891, wherein he said:

> '"I beg leave to say to you that the plain, simple and sole object of this Association is to bring about uniform rules for the settlement of freight claims. We think this uniformity should extend over the whole country and are willing to make any reasonable sacrifices of our fixed opinions in order to accomplish it.
>
> "'Again I trust I have made it clear to you that what we desire is harmony, uniformity of rules and one Freight Claim Association, with equal representation, no matter how large or small the road may be.'"

"The organization has always been composed of Freight Claim Agents and other authorized representatives having charge of freight claims of railroads and transportation lines. Its object is the prompt and proper settlement of freight claims with claimants and between carriers; also the study of claim causes and application of preventive remedies.

"There is no question but what this Association has brought order out of chaos. Its rules, being just to all and changed from time to time as conditions warranted, have enabled each one of its members to adjust carriers' liabilities with claimants and to fairly and promptly apportion the amount paid. The Association has gone farther. It has met the shipping public and the Governmental regulating bodies and agreed upon rules and methods of handling that have worked vast improvements in the claim situation; it has corrected erroneous impressions in the mind of the shipping public and others and taught them that the railroads were anxious to promptly and fairly discharge their obligations. It has pointed out to other departments of the railroads and the shippers the things that they were doing, or not doing, that were causing property to be destroyed. This was not accomplished in a day or a year; was not the product of any one mind, but is the result of twenty-three years' work and the best thought of many earnest, fair-minded men of broad experience.

"What your Association will do in the future depends upon your actions at this and subsequent meetings. It, therefore, seems to me altogether appropriate that some mention should be made of the objects of the Association—Settlement of freight claims with claimants and between carriers; also the study of claim causes and application of preventive remedies. Is it possible for this Association, covering the territory that it does and made up of members whose actions are in so many cases controlled by different laws of liability, to undertake to make rules for the settlement of claims between claimants and carriers, unless the Association itself undertakes and does make those settlements? The transportation business of this country has so grown that the activities of any one carrier are not confined to any particular locality. It is no uncommon thing for shipments originating in one locality to be delivered thousands of miles away, and for the laws governing the liability of carriers at point of origin and destination to be diametrically opposite to each other, while at the same time the carriers are governed by a Federal law which places the responsibility for the adjustment of any damage or loss upon either the originating or terminating carrier.

"It would, therefore, seem that this Association must either confine itself to the apportionment of joint liabilities as between carriers, and its members must trust each other to the extent of making proper adjustments for all concerned as between claimants and carriers, or must undertake to make all adjustments as between claimants and carriers, as well as apportion amounts paid between the carriers. In the making of rules, care must be taken to see that each member will be given its full rights; that no penalty be attached to any carrier because of its size. It is a generally recognized fact that society must protect its weaker members and I believe that this Association should do no less. An apportionment rule based upon the law of averages is not always a fair one. We have in our membership small roads and switching carriers, whose problems must be carefully considered and who must be made to assume their burdens the same as the larger lines, but neither must be persecuted because of its size or geographical location. Consequently, great care must be taken in making our rules so that the members of this Association will recognize them as being just and fair; the individual must give each member of this Association his just dues; he must be charitable in judging the actions of others; he must remember that we all have our rights, whether we get them or not; we all have our duties, whether we perform them or not, and our duties correspond exactly with our rights.

"A year ago this Association undertook to point out the cause of freight claims and, if you please, prescribe a course of treatment that would cure the ills. Whether that plan or idea is to be effective depends entirely upon the individual members of this Association. You must remember that we are attempting to correct conditions largely under control of others. We are pointing out to them their sins of omission and commission, the correction of which will require careful study and the expenditure of large sums of money. As your President sees it, the whole general scheme of receiving, transporting and delivering of freight must be changed. The amount that can be saved must be carefully considered in connection with the amount expended. Each one of us must give the best that is in him if this undertaking is to be successful. The Association must itself set a good example of efficient and economical operation; it must not be lavish in the expenditure of its monies and must arrange so that the membership can attend to the Association work with a minimum of time and expense.

"I feel confident that these things will be done, and that all matters will be worked out satisfactorily and fairly, but, to do this, the individual member must not let his selfish views influence him entirely in his actions; he must be broad-minded in connection with all matters pertaining to the Association and decide for himself what is the thing that will mean the greatest good to the greatest number. If he does this he will then find that he has decided and acted so that the company which he represents is receiving direct benefits far in excess of the individual effort and indirect benefits that no one can calculate. 'Give to the world the best that you have and the best will come back to you.'"

Report of Secretary and Treasurer.

The report of the Secretary and Treasurer covering the period May 1st, 1914, to May 31st, 1915, showed an enrollment on the latter date of 450 assessable members, representing over 263,000 miles of rail carriers, in addition to the steamer lines and other transportation companies. 41 new members were received, 9 withdrew from membership and 8 memberships were consolidated with others.

969 claims were passed to the three Arbitration Committees and 229 notices of appeal were filed. Majority awards were not reached on 10 claims, which were, accordingly, passed to the Appeal Committee for decision, and 11 notices of appeal were withdrawn.

A satisfactory financial statement was submitted, showing receipts and expenditures and a gratifying balance on hand. At the suggestion of the Secretary and Treasurer, the assessment per capita was made the same as for the past several years.

A representation of 186 memberships was registered, in person or by proxy, thus making the attendance one of our largest.

Report of Conference Committee.

Nine meetings of the Conference Committee and its special sub-committees were held during the year and much work of importance was transacted with the representatives of the Interstate Commerce Commission. The special matters handled were as follows:

Investigation and adjustment of claims for concealed loss of and damage to freight, which has long been a source of worry to both claimants and carriers. This subject was gone into most minutely and it is hoped that by the next annual session of the Association it may be in such shape as to warrant the adoption of rules which will give the relief sought.

I. C. C. Special Report Series Circular No. 17. The claim statistics called for by this circular were furnished the Commission by carriers interested up through the first quarter of 1915 and then discontinued, as the reperesentatives of the Commission stated that further data was not required at this time. The result of these reports should be a clearer understanding of the claim situation throughout the country on the part of the shipping public, as well as the carriers. It is gratifying to note that such a large majority of claims are settled so promptly, indicating that the complaints from certain quarters of delays in the settlements of freight claims by carriers were evidently the result of isolated cases and do not represent the handling accorded by carriers to claims generally.

Facilitating Claim Adjustments—Interline or Through Billing.

Agents' Overcharge Relief Claims.

U. S. Post Office Department Claims.

Retention of Claim Papers When Claims are Declined.

Duplicating Lost Claims.

Rule 20—Presentation of Claims to Intermediate Carrier.

Cause and Prevention Work—Amendment of Certain Rules.

In connection with the study given the rules of the Association by the Commission, certain changes were suggested by the Conference Committee to the appropriate Standing Committees in order to bring the wording in line with the views of the Commission, and these suggestions were, in the main, adopted by the Association.

The Secretary also read to the session the following letter received from Hon. Jas S. Harlan, Commissioner, Interstate Commerce Commision, in response to an invitation to attend the annual session of the Association:

Washington, June 2, 1915.

MY DEAR MR. TAYLOR:

I have your letter of May 11, in which you advise me that the twenty-fourth annual session of The Freight Claim Association will convene in Chicago June 16. I shall appreciate it if you will convey to the Association my cordial acknowledgment of the very courteous invitation extended to me to attend its session; and an expression of my regret that the official engagements of the Commission prevent me from being present. The Commission will be represented by Mr. Quirk, who is specially in charge of claim matters.

I desire, however, to take advantage of this opportunity again to express my appreciation of the coöperative spirit which has characterized the relations between your association and representatives of the Commission. It is hoped that the result of these joint conferences will be a set of rules and forms that will minimize the causes of complaint, and that will substantially improve the whole claims situation.

In our last annual report to Congress, we took occasion to comment upon the results of our special inquiry into claim matters and the favorable showing made by carriers. It is very gratifying to observe that carriers promptly adjusted the majority of claims received by them, and it is confidently expected that their efforts in this direction will be continued with renewed vigor.

With best wishes for a successful session, I am

Very truly yours,
(Signed) JAS. S. HARLAN,
Commissioner.

MR. W. P. TAYLOR,
Secretary, Freight Claim Association,
Richmond, Virginia.

Reports of the Committees on Constitution and By-Laws, Methods and Topics, Accounts, Cause and Prevention, Joint Loss and Damage and Overcharge Rules, Loss and Damage Rules and Overcharge Rules were presented in the order stated.

In connection with the consideration of the report of the Committee on Constitution and By-Laws, the following action was taken:

New Methods of Electing Members of Arbitration and Appeal Committees.

An amendment to the Constitution was adopted, effective immediately, providing that, instead of the nominating committee reporting the names of exactly the number of members necessary to fill the membership of the Committees, double the necessary number should be named, the privilege heretofore enjoyed of additional nominations from the floor to still be operative.

Giving Reasons for Adverse Reports by Committees.

An amendment to Section 1, Article VII, was adopted providing that when a committee reports adversely a proposition submitted to it the reasons for such adverse report shall, when practicable, be given.

Abolition of Old Committees and Creation of New Committees.

On recommendation of the Committee on Constitution and By-Laws, the Committee on Methods and Topics and the Committee on Accounts were abolished and a new committee created to be known as "The Committee on Methods, Accounts and Forms," whose duty it shall be to "consider under its own initiative or by direction of the Chairmen of the Standing Committees matters affecting the method of handling claims, questions of accounting and use of forms. It shall also be the duty of this committee to confer with committees of other associations on its own initiative or by request on methods, accounting matters and forms. The conclusions of this committee must be made to the Chairmen of the appropriate Standing Committees of the Association in accordance with Article VI, Section 3(a), prior to the meeting of the Standing Committees, which committees will make final report to the Association."

The membership of the Committee on Cause and Prevention was increased from five to nine members.

Rebuttal Briefs.

Amendment was also made so as to provide that when a claim is in the course of preparation for arbitration and additional investigation has been made which would affect the liability of carriers whose arbitration statements have already been submitted each carrier shall have the right of further investigation and one rebuttal brief only and the right to see all rebuttal statements before claim is submitted to the Secretary.

Charging Out Under Decisions of Arbitration Committee.

This provision of the Constitution was modified so that paying carrier may relieve its account under decision of the Arbitration Committee by charging arbitrarily only those members who operate the provisions of Rule 255, authority to be obtained, within thirty days, from those who do not operate that rule.

Submission of Non-Decisions to Appeal Committee.

Amendment was adopted providing that when an Arbitration Committee is unable to reach a majority conclusion and it is necessary to forward claim to the Appeal Committee for award, papers shall first be returned by the Secretary to the paying carrier, who shall give each interested carrier an opportunity to prepare statement for the Appeal Committee, just as is now done in cases regularly under appeal.

Charging Out Under Decision of Appeal Committee.

A new Sub-Section was added to Section 20, Article VII, to provide for the relief of accounts of carriers outstanding, after decisions by the Appeal Committee, in the same manner as relief is provided after decision by an Arbitration Committee, except that authorities must be issued within ten (instead of thirty) days after receipt of papers.

Charging Out Under Decisions of Arbitration and Appeal Committees When Papers Lost.

Additional paragraphs were added to Sections 14 and 20, Article VII, providing that when papers are lost after decision has been rendered by the Arbitration or Appeal Committee carrier or carriers decided against may be debited with their proportion without duplication of papers others than a copy of the awàrd, except that when an interested carrier desires to appeal from the decision of the Arbitration Committee a duplicate set of papers must be furnished by carrier losing the originals.

Cause and Prevention Work.

The matters referred to below were presented by the Committee on Cause and Prevention in this, its first, report. This new phase of work undertaken by the Association is expected to result in much good in the way of improvement of the claim situation, the efforts of the Committee being directed along the lines indicated by its name.

On recommendation of the Committee, there was referred to the American Railway Association for consideration and such action as it deems proper and necessary the subject of establishment of joint inspection bureau at junction points for the purpose of inspecting condition of cars interchanged, both as to physical condition and as to seals, vents, ice bunkers and other information necessary from a claim standpoint, it being the expressed view of The Freight Claim Association that the principle of joint inspection bureaus and joint records meets with its approval.

In connection with the subject of prevention of loss and damage to perishable freight, the Secretary was instructed to communicate with the various traffic associations throughout the United States and Canada and convey to them the recommendation of The Freight Claim Association that they consider the advisability of providing in their legal tariffs more nearly uniform rules under which the shippers of fruits and vegetables and other perishable freight are required to give reasonable and definite instructions as to the desired refrigeration, icing, non-icing, ventilation or other accessorial service in transit, including protection of property against frost, as may be authorized in carriers' tariffs applicable, and that such action toward uniformity include, so far as practicable, the reconciling of such tariff rules already published.

In the matter of the alleged growing tendency on the part of some carriers to deliver astray freight without adequate proof of ownership, the Association concurred in the opinion of the Committee that the present rules of the carriers fully cover and that it is simply a question of enforcing them.

The Association adopted the recommendation of the Committee concurring in the resolution of the Committee on Packing, Marking and Handling of Freight of the American Railway Association that over and short reports at all common points should be checked at least twice a month by correspondence at smaller stations and at larger stations at meetings of representatives of interested carriers or through over ana short bureaus.

In connection with the deaths of Messrs. Thomas Eedson, J. M. Brewer and W. A. Bingham, suitable memorial resolutions were adopted by rising votes.

The following remarks by Mr. Robert E. Quirk, representing the Interstate Commerce Commission, were found of especial interest:

"During the past year the results of the joint conferences between your Association and representatives of the Commission have begun to crystallize. They are assuming a more definite form. Work of this kind is slow of accomplishment, as it involves so many considerations which must be carefully weighed before conclusions are reached. It requires patience and diligence, but these attributes, combined with intelligent effort, are bound to succeed. As has been said on many occasions, the object of the conferences with the Commission has been to improve general conditions respecting the presentation, investigation and adjustment of claims. There is evidence of improvement on all sides. Undoubtedly there is room for more improvement and your past record is a guarantee that you can be relied upon to better conditions wherever it is within your power to do so.

As to loss and damage claims, there are of course many points of dispute which provoke bad feeling between the claimant and the carrier. These disputes are very vexatious and are largely due to a lack of a full understanding of each other's troubles. Most of the troubles of the world are due to that same lack of understanding, or to a proper consideration of, the other fellow's views. Because of your experience, training and special knowledge of shipping transactions, it is often within your power to avoid or minimize the causes of these disputes.

"There is one phase of the adjustment of claims which causes much trouble and which leads to discriminatory practices. I have in mind the diversity in the practices among carriers on questions of responsibility. Of course, the Commission does not take jurisdiction over loss and damage claims unless they are used to defeat some provision of the law. However, as you know, the Commission has proceeded with these conferences without stopping to place too nice a distinction on the extent of its authority. It has come to my attention—and I think I may claim some knowledge of the subject from experience—that some of your rules, if construed literally and without reference to the general intent of the rules taken in their entirety, might be construed as granting blanket authority to adjust claims according to the views and policy of the carrier against which the claim is presented and to force other carriers to participate in the adjustment even where it is manifest that a proper basis for settlement had not been established by the paying carrier. In order to avoid discriminations, there ought to be uniformity of practice and a pretty clear understanding about questions of responsibility. I have understood that it sometimes happens that a claim will be investigated and declined by one carrier and later be presented to another carrier interested in the haul and paid by it. Assuming, for the purpose of my illustration, that the first carrier was right in declining the claim, it is clear that unless there was additional evidence submitted to or developed by the second carrier the payment would be equivalent to a rebate; and it might happen that under the literal construction of some of your rules the first carrier would be obliged to pay its pro rata of the claim in spite of the fact that the payment was wrong.

"Your rules ought to be certain, so as to consitute guides; but because of the infinite diversity of cases it is appreciated that it is with great difficulty that you are able to classify them so as to apply one standard to all cases. Seldom is one case in its facts exactly like one which preceded it, and the decision or the fault of one can throw little light upon the next. Nevertheless, it is becoming more and more important that a clear understanding should be had concerning questions of responsibility if discriminations are to be avoided. One of the reasons for this diversity is competition for traffic and another is the fear of the courts. On page 43 of the last annual report of the Commission to Congress comment is made as to the effect of each of these questions upon the settlement of claims."

The following officers and members of the Arbitration and Appeal Committees were elected for the ensuing eleven months:

President: E. Arnold, Freight Claim Agent, Grand Trunk Railway.

First Vice-President: W. O. Bunger, Freight Claim Agent, C. R. I. & P. Railway.

Second Vice-President: F. E. Winburg, Freight Claim Agent, Atlanta & West Point R. R.

Secretary and Treasurer: Warren P. Taylor, Traffic Manager, R. F. & P. Railroad.

Financial

Railways Net Gain During April.

By dint of further careful husbanding of resources through rigorous curtailment of operating expenses the total mileage of United States railways was able in April to score another gain for net revenues compared with last year, in the face of a slight contraction in gross business hauled. For the country's entire mileage, 256,143 miles, there is shown a gain in net for April of slightly over $8,000,000 in figures compiled by the Bureau of Railway News and Statistics, based upon the official figures of the Interstate Commerce Commission for the month. The official figures are limited to roads earning $1,000,000 or more per year, which omits over 27,000 miles.

Considered as a reflection of the efficiency of American railroad management in trimming their sails to make the most of adverse winds, the showing is favorable, but much of the saving in expenses, on the other hand, is the result of deferring to a later and more propitious day such expenditures on maintenance as can be foregone for the time being without impairing efficiency or safety of operation. This represents expenditure not saved, but merely put off. Another factor, however, which represents a real saving, has been the slight but effective reduction in luxurious elaborateness of train schedules to which the American public has become accustomed.

The figures for April and 10 months of the fiscal year follow:

	1915	Decrease
April—		
Mileage	256,143	*2,593
Gross	$239,251,611	$4.584.979
Expenses	171,511,616	12,665,766
Net	67,739,995	*8,080,787
Taxes	11,549,297	383,538
Income	56,190,698	*8,464,325
Ten months—to April 30, 1915—		
Gross	$2,473,507,180	$169,414,133
Expenses	1,753,645,447	165,824,265
Net	719,861,733	3,589,868
Taxes	115,816,177	1,299,980
Income	604,045,556	2,289,888

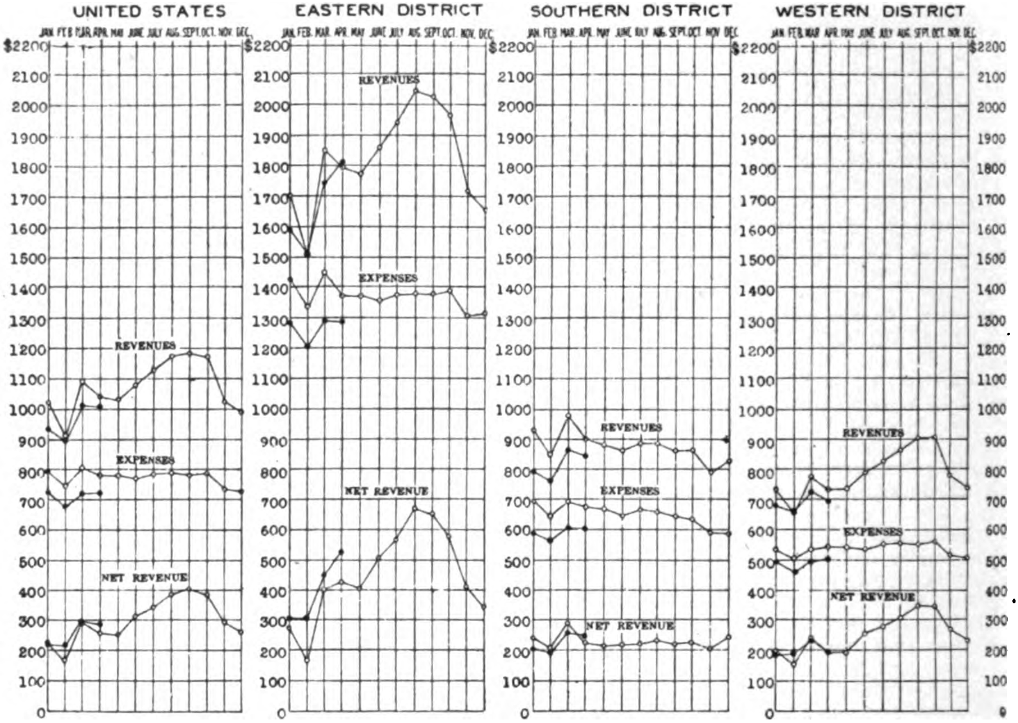
* Increase.

A hopeful feature of the figures is the reporting of gross for April, only $4,584,979 under April, 1914. It is true that the mileage on which this smaller gross was earned was 2,593 miles greater, but encouragement is to be found in the fact that this loss, with the exception of February, is the smallest of any month in the fiscal year. While February's loss was only $2,000,000, it was on top of a much greater loss a year ago than occurred in April a year ago. The April loss in gross from the previous year, with this exception, is the smallest since March, 1914. That month was exceptional, comparing with the greatly reduced gross of March, 1913, during the floods. Disregarding this abnormal comparison of March, 1914, we

MONTHLY REVENUES AND EXPENSES PER MILE OF LINE

ROADS HAVING ANNUAL OPERATING REVENUES ABOVE $1 000 000

CALENDAR YEAR:
1914 •
1915 •



The points on the vertical lines are of significance only in showing the condition for the particular month. The lines connecting the points assist in tracing the change from month to month but do not indicate the trend during the month, nor are they cumulative for the period.

must go back to October, 1913, to find a smaller loss in gross.

April's gross loss comes on top of a loss last year of almost $8,000,000, placing the month about $12,000,000 under April, 1913. This is the smallest two-year loss since last September.

A striking feature of the figures, reflecting vividly the effectiveness of management efficiency, though again indicating vast deferred expenses, is seen in the ten month figures. Against a contraction in gross business of $169,414,133, there was effected a reduction in operating expenses of $165,824,265, cutting the loss in net for ten months to $3,589,868 A slight easing in taxes further cut the loss in operating income. Taxes for ten months this year, however, were 4.68 per cent of revenues, against 4.43 per cent last year.

The American Financial Situation as Viewed by a Foreign Expert.

IT is interesting to note from time to time how our neighbors across the water view the financial and business situation in the United States. From a more disinterested point of view they are often able to throw a helpful light upon the outlook. The following paragraphs taken from the July 3d issue of the London Statist, will prove of particular interest to railroad officials:

"The condition of the New York Exchange and the sales of American securities by British investors in order to subscribe to the new war loan and for other purposes have brought into prominence the question of the precise amount of American securities held abroad, and, in order to obtain more accurate data than has hitherto been available, Mr. L. F. Loree, the president of the Delaware and Hudson Company, has endeavored to obtain complete information from all the important railroads of the country of the amount of their securities held abroad The companies have been able to answer Mr. Loree's questions more categorically and completely than would have been possible a short time ago, for the reason that under the American income-tax law foreign holders of securities are exempt, and in order to obtain their interest or dividends free of tax they must make a declaration of exemption.

"The interesting statement we have received from Mr. Loree, and which is of special interest to our readers at the present time, is as follows:

RAILROAD SECURITIES HELD ABROAD.

"'Requests were sent to 145 railroad corporations, being all the railroads in the United States above 100 miles in length.

"'Replies were received from 136 companies. One hundred companies furnished classified statements of securities held abroad, while 36 replied that none of their securities was so owned.

"'Nine companies have not yet replied, of which seven are negligible.

"'The stocks were identified by entries in the transfer books of the issuing companies. To the extent that they may be carried in the names of domestic bankers, brokers, or institutions, for foreign holders, the amount would be understated

"'The bonds were in the main identified by the "slips" filed by the payee under the requirements of the federal income tax law. Where interest is in default there would be no income-tax certificates in respect of coupons not paid, and to that extent the amount would be understated.

"'The information was determined from data collected from October, 1914, to April, 1915, and during that period there have been large sales of these securities for foreign account in the American markets, and to that extent the amount would be overstated.

"'There are held in France several hundred million dollars worth of American railroad securities that are not repayable except in francs, and that cannot in any likely contingency come upon this market. Where such bonds are in default there may be issued in place thereof, when reorganization is carried through, bonds payable in dollars. The amount of such bonds in default is not great.

"'There are held in Great Britain many of these securities by life and fire insurance companies that are likely to be held against calamities. There are also large amounts held by trustees, and people of large means, likely to be retained as insuring an income against any possibility of disaster.'"

Summary of U. S Railroad Securities Held Abroad.

Preferred stock, first	$161,281,000
Preferred stock, second	100,000
Common stock	633,802,000
Notes	61,376,000
Debenture bonds	204,005,000
Collateral trust bonds	227,610,000
Mortgage bonds	*1,269,057,000
Equipment bonds (includes equipment trust certificates)	17,364,000
Car trusts	808,000
Receivers' certificates	998,000
Total	$2,576,401,000

No. of roads requested to furnish information		145
No. of roads reported as having securities abroad	100	
No. of roads reported as *not* having securities abroad	36	
		136
No. of roads from whom reports have not been received		9

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* This amount includes $1,356,000 of mortgage bonds of the Colorado Midland Railway Company, that company stating that they only had record of 60 per cent of the total of such bonds issued, and this $1,356,000 is based upon 60 per cent of the total of such bonds issued.

"Whether or not American agents of English persons and companies have securities registered in their names which are really the property of English holders cannot be ascertained. There is, however, a very general idea that a large amount of American securities is held in New York and elsewhere on behalf of Europeans, and to the extent that this is the case the amount of American securities owned by Europe will be greater than the amount calculated with so much care and thoroughness by Mr. Loree. Furthermore, Europe holds a considerable quantity of American securities other than railways. Not only is there a great European holding of securities in companies such as the Steel Corporation and other industrials, but there is a considerable amount of money in American mining ventures of various kinds and descriptions, as well as a large sum of private money lent on mortgage, invested in land and property and employed by private firms. Consequently the total sum of money invested in the country is largely in excess of the £500,000,000 which Mr. Loree calculates is invested in American railroad securities upon which interest and dividends are ear-marked to European holders by claims to income tax exemption.

"Exports from the United States continue to be abnormally large, the amount for May having reached the great total of $274,000,000, against $162,000,000 last year, and as the imports were of the value of only $142,000,000, against $164,000,000, there was an excess of exports over imports in May of $132,000,000, against an excess of imports of $2,500,000 in May of last year. Since the war began at the beginning of August last the excess of exports over imports has reached the enormous total of $988,000,000, and it is obvious that for the first year of the war to the end of July the excess will exceed $1,200,000,000, or £240,000,000. The sum indicates that in the first twelve months of war the United States has lent abroad on balance, or bought back its own securities, to the extent of something like £100,000,000.

"In the next twelve months, if exports are maintained and imports do not expand, the amount invested abroad would reach a still greater sum, as the tourist expenditures are now quite small. But it is probable that the exports will show much greater expansion having regard to the price of cotton and the greater demand for it than in the autumn of last year, as well as to the great quantities of munitions and supplies of all kinds which Europe is purchasing from the United States.

"In the twelve months to the end of June the value of the exports of American produce has reached about $2,750,000,000, against $2,364,000,000 last year, an increase of nearly $400,000,000. We shall certainly be surprised if in the twelve months to June of next year the value of the exports does not approach $4,000,000,000, and in place of an excess of imports over exports in the current year to June of about $1,100,000,000 there is not an excess of exports over imports of nearly $2,000,000,000. Whether or not this expectation will be realized will depend, however, entirely upon the American people themselves If they are disposed to lend money to Europe and to the world in general, they will be able to sell all the goods they have to dispose of. If, however, they are not willing to lend money as freely as we anticipate, then their exports will be kept down to the extent which foreign nations can pay them in goods or can obtain loans from the United States. There is practically no limit either to the productive power of the United States or to the goods they can sell, and as the country has abundance of gold and is desirous of becoming a great international money market, we have no doubt the

American people will lend all the money which other nations need to borrow in order to pay for the American goods they wish to purchase.

"The enormous value of America's exports and the great excess of exports over imports are shown by the following comparisons:

MERCHANDISE (MAY).

	1915	1914	Inc. or Dec.
Imports ...	$142,285,000	$164,282,000	—$21,997,000
Exports ...	273,768,000	161,733,000	+112,035,000
Exc. of Exp. or Imp.	Ex.131,483,000	Im.2,549,000	+134,032,000

World's Railway Capital Reaches $60,000,000,000.

EACH new mile of railway added to the world's total in 1913 was attended by an average increase in capital of $123,143. The average capital of United States railways as they stood in 1913 was only $65,861 per mile. The immense disparity, showing strikingly the moderate capitalization of United States railways is based on the annual compilation of the world's railway capital of the Prussian Department of Public Works by the Bureau of Railway News and Statistics, Chicago.

For the first time, the aggregate capital of the world's railways in 1913 crossed the 60 billion mark, and stood at $60,222,036,784. In the total, however, is figured over $19,000,000,000 as the capital of our railways. This is the erroneous gross capital which includes all the complications due to intercorporate ownership and disregards the Interstate Commerce Commission's figure of $15,330,131,446 as the correct total in 1913. With this correction, the world's total in 1913 stood at $56,350,804,230, an increase over the preceding year of $1,848,250,566. For an addition of only 15,009 miles, this brings the average cost of each new mile to the above sum of $123,143.

Showing further how modestly the capital of our own railways appears in the world comparison, is the fact that although our railways with their more than 250,000 miles of line represented about 37 per cent of the world's mileage, their capital was only 27 per cent of the world's. Europe, the continent of high railway capital and low priced labor, reported an average of $125,952 for each mile of its railways against our $65,861. Our rates, however, were not only lower than Europe in capital per mile, but also lower than the world's average outside of Europe, which stood in 1913 at $70,656. The average for the world as a whole, against our $65,861, was $82,313 per mile.

This moderate capitalization of United States railways places them 18th in the list of nations in capital per mile, though by a margin of over 200,000 miles the first in mileage. The countries which exceed the United States are, by the German authority, in order as follows, with their per mile figures:

1	Great Britain	$271,827	8	Germany	120,355
2	Belgium	190,415	9	Roumania ...	89,095
3	France	145,857	10	Spain	88,368
4	Brazil	142,080	11	Japan	84,301
5	Switzerland .	130,656	12	Russia	83,980
6	Italy*	124,116	13	Holland ...	82,796
7	Austria	121,164	14	Serbia	73,374
15	New South Wales	71.422	17	Belgian Congo	68,839
16	Hungary ...	71,161	18	United States	65,861

* Figure is for 1907. Latest figure (1914) is $161,540 per mile.

It should be remembered, moreover, that some of these nations of higher capitalization have narrow gauge railways, all have equipment which in point of size and power is puny by comparison with ours and most furnish service which would not be tolerated by the American public. Only the following nations or colonies are below ours in capital per mile, many of them being the lands of poorest railway facilities.

19	Algiers	$64,019	32	British India	$45,089
20	Victoria ...	63,499	33	South Australia	44,991
21	Denmark ..	61,925	34	Norway	43,788
22	Sumatra ...	60,885	35	Cuba	42,624
23	Argentina ..	56,821	36	Tasmania ..	42,330
24	New Zealand	53,813	37	Siam	38,681
25	Uruguay ...	52,921	38	Finland	36,864
26	Chile	52,480	39	Queensland .	34,279
27	Sweden	51,590	40	Legos	33,792
28	Canada	50,952	41	Western Australia	26.091
29	South Africa	50,380	42	Sierra Leone	20,582
30	Gold Coast .	49,152			
31	Bulgaria ...	45,651			

Between 1912 and 1913 the average capital per mile for the world increased $1,029, or from $81,284 to $82,313. European railways increased in the one year from $124,032 to $125,952, or $1,920. The United States in two years, 1911 to 1913, increased from $63,944 to $65,861, only $1,917.

Baltimore and Ohio Declares Dividend.

AT the monthly meeting of the Board of Directors of the Baltimore and Ohio Railroad Company, held in New York, July 8, 1915, semi-annual dividends of two per cent on the preferred stock and two and one-half per cent on the common stock were declared. The dividends are payable on September 1st to stockholders of record July 31, 1915.

The statement of the year's operations, considered at this meeting, was based on actual figures for eleven months and estimated figures for the month of June. The comparative figures for 1915 and 1914 are as follows:

	1915 June est'mt'd	1914 Actual	Inc. or Dec.
Total Operating Revenue	$91,814,503	$99,164,009	$7,349,506 Dec
Total Operating Expenses	63,962,388	74,403,389	10,441,001 Dec
'Net Operating Revenue ...	$27,852,115	$24,760,620	3,091,495 Inc
Taxes Accrued	3,288,679	3,228,466	62.213 Inc
Operating Income	$24,563,436	$21,534,154	3,029,282 Inc
Other Income.	4,898,976	5,843,867	944,891 Dec
Gross Corporate Income.	$29,462,412	$27,378,021	2,084,391 Inc
Reductions, Interest, etc..	18,874,950	18,177,455	697,495 Inc
Net Income..	$10,587,462	$9,200,566	1,386,896 Inc

Deducting the preferred dividend leaves $8,232,935 applicable to the $152,000,000 common stock outstanding, and after payment of the five per cent on the common stock there remains $635,632 to be carried to surplus.

Of the decrease in expenses $5,627,416 is in conducting transportation, the ratio for the year being 37.42 compared with 40.32 per cent in the previous year. Maintenance of equipment expenses decreased $1,193,583, the ratio so applied being slightly in advance of the previous year. Maintenance of way expenses for the year 1914 carried a charge of $2,112,000 incident to the 1913 floods. Eliminating this amount from the total decrease of $3,458,589 it shows other maintenance items to have decreased $1,286,346. The total operating ratio for the year was 69.66 compared with 75.03 per cent in 1914.

Personal

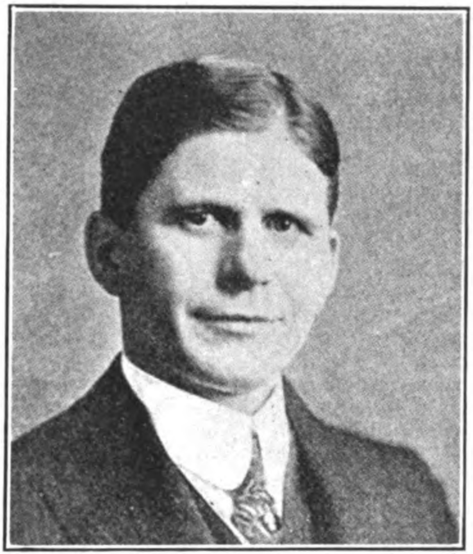
Julian M. Bamberger.

JULIAN M. BAMBERGER, who has recently been elected president of the Salt Lake and Ogden Railroad was born in 1889. He received his early education in the Salt Lake public schools and at Princeton University. He began his railroad work with the Salt Lake and Ogden, starting in as an apprentice and working his way through the shops. He also studied the construction features of railroading, serving on the section as a laborer and foreman. Upon his graduation from Princeton, he was made roadmaster. He then took up the study of power and was soon placed in charge of the power shops and sub-stations. The next promotion made him superintendent and about three years ago he became vice-president. In his new position his title will be president and general manager and he succeeds his father Simon Bamberger, who has announced his retirement from active business pursuits.

JULIAN M. BAMBERGER.

John J. Ekin.

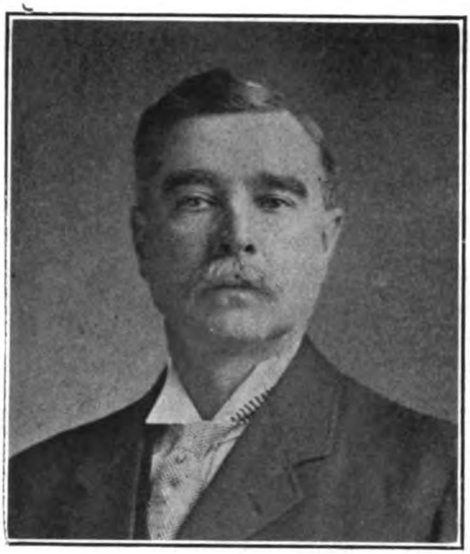
JOHN J. EKIN, general accountant of the Baltimore & Ohio Railroad at Baltimore, Md., has been appointed general auditor of the entire system, with office at Baltimore. Mr. Ekin was born in Whitestown, Pa., June 8, 1873, and at the age of 22 entered the yard and freight offices at Ellwood City, Pa., from which position he was transferred to the auditor's offices of the Pittsburgh & Western Railway, at Pittsburgh, August 11, 1896. In March, 1902, Mr. Ekin was first established at the headquarters of the Baltimore & Ohio Railroad, in Baltimore, as bookkeeper and general clerk in the office of the auditor of subsidiary lines, and was promoted to chief clerk in the same department in January, 1904. Retaining this post for four years, he next became auditor, superintendent of the relief department and secretary to the board of managers of the Washington Terminal Co. At the time the government instituted the railroad valuation campaign, Mr. Ekin was appointed secretary of the valuation committee of the Baltimore & Ohio Railroad, and December 1, 1913, was given the important charge of general accountant of the same company, where he remained until his recent promotion.



JOHN J. EKIN.

F. P. Brady.

F. P. BRADY, who has been appointed general superintendent, National Transcontinental Railway between Quebec and Winnipeg, and of the Lake Superior Branch, Grand Trunk Pacific Railway, which are being operated as part of the Canadian Government Railways, with office at Cochrane, Ont., was born at Haverhill, N. H., June 22, 1853, and entered railway service 1869, as station baggage master, Passumpsic Railway, since which he has been consecutively: 1873 to 1880, train dispatcher, Northern Rd., at Concord, N. H.; 1880 to 1888, chief train dispatcher, Southeastern Ry., at Richford, Vt.; 1888 to 1889, trainmaster C. P. R.;



F. P. Brady.

1889 to 1898, assistant superintendent, same road; 1898 to May, 1901, superintendent, same road at Smith's Falls, Ont.; May, 1901, to September, 1902, superintendent, districts 10 and 11, same road, at Toronto; September, 1902, to May, 1903, superintendent, district 19, same road, at Fort William, Ont.; June 1, 1903, to February, 1904, assistant general superintendent, Central Division, Winnipeg, Man.; February, 1904, to September 16, 1908, general superintendent, Lake Superior Division, C. P. R., North Bay, Ont.; May 1, 1908, to June, 1909, member of the Canadian Government Railways Board of Management; June, 1909, to June, 1913, also general superintendent, Canadian Government Railways, Moncton, N. B.; June, 1913, on the abolition of the Canadian Government Railways Managing Board, to May, 1915, general superintendent, Canadian Government Railways, Moncton, N. B.

I. W. Geer.

I. W. GEER, who has been recently promoted to the office of general superintendent, Central System, Pennsylvania Lines West of Pittsburgh, was born February 1, 1873, at Plainfield, Conn. He graduated from Yale University in June, 1895, and entered the service of Pennsylvania Lines in September of that year. In November, 1897, he was transferred to maintenance of way department as assistant on engineer corps, Erie and Ashtabula Division, and was promoted to assistant engineer of the same division in July, 1898. In March, 1900, he became engineer maintenance of way, and was transferred in December, 1902, to Pittsburgh Division in the same capacity. He was promoted to superintendent Terre Haute & Logansport Railway, and Logansport & Toledo Railway (affiliated with Pennsylvania Lines and now the Michigan Division of the Vandalia Railroad) in January, 1904. In November, 1906, Mr. Geer was transferred to the Logansport Division and again transferred to Cleveland and Pittsburgh Division in January, 1913, where he remained until his recent promotion on July 1, 1915.

I. W. Geer.

Edward T. Whiter.

EDWARD T. WHITER, who has been appointed assistant general manager of the Pennsylvania Lines West, was born at Steubenville, Ohio, in 1864. He received a common school education and entered railroad service with the Pennsylvania Lines in 1881 as tele-

Edward T. Whiter.

graph operator, and served consecutively as telegraph operator, train dispatcher, assistant train master and train master until January 1, 1903, on which date he was appointed superintendent of the Eastern Division.

On January 1, 1913, he was appointed general superintendent of the Northwest System of the Pennsylvania Lines, which position he held until July 1, 1915, when he was appointed assistant general manager of the Pennsylvania Lines West, as above noted.

William C. Downing.

WILLIAM C. DOWNING, who has been appointed general superintendent of the northwest system of the Pennsylvania Lines West of Pittsburgh, was born in Richmond, Ind., on August 21, 1865. He was educated in the public schools and Earlham College, Richmond, Ind., and entered the service of the Chicago St. Louis & Pittsburgh Railroad (now Pittsburgh, Cincinnati, Chicago & St. Louis Railway), as rodman in the engineering corps at Richmond, in April, 1885. He was appointed acting assistant engineer (same division), June 1, 1886, and assistant engineer, September 7, 1888, headquarters at Indianapolis, Ind. On May 1, 1891, he was appointed engineer maintenance of way of the Richmond Division, with headquarters at Richmond, where he remained until June 1, 1895, when he became engineer maintenance of way of the main line division of the Terre Haute & Indianapolis Railroad (now St. Louis Division of the Vandalia Railroad), with headquarters at St. Louis, Mo., and later at Terre Haute, Ind. On June 10, 1901, he was made superintendent of the Peoria Division of the Vandalia, where he remained until April 5, 1902, when he returned to the main line division, as superintendent. November 1, 1912, Mr. Downing was appointed superintendent Pittsburgh Division of the Pittsburgh, Cincinnati, Chicago & St. Louis Railway, with headquarters at Pittsburgh, Pa., where he remained until February 1, 1914, when he became general superintendent of the central system of the Pennsylvania Lines West, with headquarters in Toledo, Ohio, and continued in this capacity, until his recent appointment.

WILLIAM C. DOWNING.

G. B. Obey.

G. B. OBEY, superintendent of the Monongahela Railroad, has been appointed general superintendent of the Monongahela Railway which was formed recently by the consolidation of the Monongahela Railroad and the Buckhannon & Northern. Mr. Obey entered the service of the Pittsburgh & Lake Erie as a train dispatcher in 1889, and in 1899 was promoted to chief train dispatcher. Two years later he was appointed superintendent of the Youghiogheny and Monongahela divisions of the same road, with headquarters at Pittsburgh, Pa. In 1905, he left the service of the Pittsburgh & Lake Erie to become superintendent of the Monongahela Railroad, with office at Brownsville, Pa., which position he held at the time of his recent appointment as general superintendent of the Monongahela Railway, with headquarters at Brownsville.

G. B. OBEY.

S. B. Robertson.

S. B. ROBERTSON, who has been appointed superintendent of the Cleveland and Pittsburgh division of the Pennsylvania Lines West of Pittsburgh, was born at Milton, Mass., on July 21, 1878, and was graduated from the Massachusetts Institute of Technology in the class of 1899. Following his graduation, he

S. B. ROBERTSON.

F. J. STIMSON.

had a year of experience on railroad bridge work as draftsman. On May 21, 1900, he entered the service of the Pennsylvania Lines West of Pittsburgh as assistant on the Engineer Corps, Pittsburgh Division. On December 1, 1901, he was transferred to the Erie and Ashtabula Division in the same capacity.

On January 1, 1903, Mr. Robertson was promoted to assistant engineer, Pittsburgh Division, and on December 12, 1904, was appointed division engineer, Indianapolis Division. He was advanced to superintendent of the Erie and Ashtabula Division on February 1, 1911, and on July 1, 1915, was appointed superintendent as above noted.

F. J. Stimson.

F. J. STIMSON, who has been appointed superintendent of the Zanesville Division of the Pennsylvania Lines West of Pittsburgh, was born at Kalamazoo, Mich., October 30, 1868, and was graduated from the Kalamazoo High School in 1886. During the next two years he had engineering experience at Knoxville, Tenn., and also worked on various railroad construction projects in Tennessee, North Carolina and Alabama, as rear chainman and rodman.

Mr. Stimson entered the service of the Grand Rapids and Indiana Railway in November, 1888, as clerk in the office of the claim and timber agent. He went into the field as rodman in the following year and continued in that position on various surveys and construction work until June, 1890, when he engaged in railroad surveys, maintenance of way and tunnel construction work in the Southwest. In March, 1893, he returned to the service of the Grand Rapids and Indiana Railway as assistant road master, and was promoted to division engineer, Northern Division, on January 1, 1914. On July 1, 1915, he was appointed superintendent, as above noted.

Paul Jones.

PAUL JONES, who has been appointed superintendent of the Toledo Division of the Pennsylvania Lines West of Pittsburgh, was born September 6, 1867, at Hartford City,

PAUL JONES.

Ind., and completed his education at Earlham College, Richmond, Ind. He first entered the railroad service on June 18, 1888, as rodman, at Richmond, Ind., and served in that capacity and as draftsman until July 1, 1893, when he was appointed assistant engineer maintenance of way, Indianapolis Division. On July 1, 1898, he was promoted to engineer maintenance of way.

Mr. Jones was transferred to the Richmond Division, in the capacity of engineer maintenance of way, on April 1, 1900. He was transferred to the Louisville Division, in the same capacity, on June 1, 1901, and on April 15, 1903, was again transferred to the Indianapolis Division. On December 12, 1904, he was advanced to the position of superintendent of the Zanesville Division, and on July 1, 1915, was appointed superintendent, as above noted.

Otto Schroll.

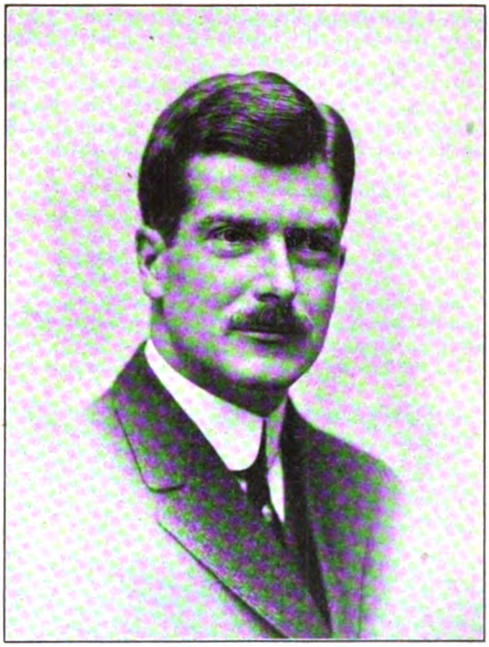
OTTO SCHROLL, who has been appointed superintendent of the Western Division of the Pennsylvania Lines West of Pittsburgh, was born at Columbus, Ohio, September 29, 1868. He completed his education at the high school and at the Ohio State University at Columbus, having been graduated from the latter in the class of 1886. He entered upon railroad work, in the year of his graduation, with the Scioto Valley and New England Railway, which later became a division of the Norfolk and Western Railway.

In October, 1890, Mr. Schroll entered the service of the Pennsylvania Railroad System, being first engineer and later superintendent of the Wheeling Bridge and Terminal Railway, which meanwhile had become the Wheeling Terminal Railway. On December 15, 1902, Mr. Schroll was appointed superintendent of the Richmond Division, Pennsylvania Lines West of Pittsburgh. He was transferred to superintendent of the Toledo Division on July 1, 1903, and on July 1, 1915, was appointed superintendent, as above noted.

OTTO SCHROLL.

William M. Wardrop.

WILLIAM M. WARDROP, who has been appointed superintendent of the Erie and Ashtabula Division of the Pennsylvania Lines West of Pittsburgh, was born at Edgeworth, Pa., on January 8, 1879. He attended the Latin School at Sewickley, Pa., and completed his education at Princeton University. He entered the service of the Pennsylvania Lines West of Pittsburgh on January 7, 1898, as yard clerk at Allegheny, Pa., on the Eastern Division of the Pittsburgh, Fort Wayne and Chicago Railway. He continued to serve in that capacity, and also as train master's clerk of the Eastern Division, until 1902, in which year he was promoted to assistant train master of the Erie and Ashtabula Division. He remained in this position until 1905, but for fifteen months of the time devoted his attention to special work for the general superintendent of freight transportation.



WILLIAM M. WARDROP.

On April 10, 1905, Mr. Wardrop was appointed train master of the Erie and Ashtabula Division. He was promoted to superintendent of the Western Division on February 1, 1911, and on July 1, 1915, was appointed superintendent as above noted.

Operation

The Car Situation.

THE Committee on Relation between Railroads of the American Railway Association, has issued the following statement, giving a summary of freight car surpluses and shortages from July 1, 1915, with comparisons:

Total Surplus:

July 1, 1915	275,896
June 1, 1915	300,146
July 1, 1914	220,875

The surplus for June 1st, 1915, shown above includes figures reported since the issue of Statistical Statement No. 5.

The decreases in surplus under June 1st, 1915, are chiefly in Groups 2, 3 and 6 (East and Central North) and Group 8 (Central), except box cars. There is an increase in the surplus of box cars, chiefly in Groups 2, 3 and 6 (East and Central North), and Group 11 (Canada).

Total Shortage:

July 1, 1915	785
June 1, 1915	218
July 1, 1914	1333

The shortage for June 1st, 1915, shown above, includes figures reported since the issue of Statistical Statement No. 5.

The figures by classes of cars follows:

Classes	Surplus	Shortage
Box	131,105	331
Flat	13,536	77
Coal and Gondola	83,726	185
Other	47,529	192
	275,896	785

Cafe Car for the Pennsylvania.

AS a further step to provide every possible comfort and convenience for passengers on its trains, the Pennsylvania Railroad has equipped, and will shortly place in service, an all-steel day coach cafe car, provided with a broiler buffet from which meals will be served. This car will be tried out as an experiment, and if it is found to meet a sufficient demand on the part of the traveling public, others of like character may be placed in operation. It will not be used, however, to supplant dining cars.

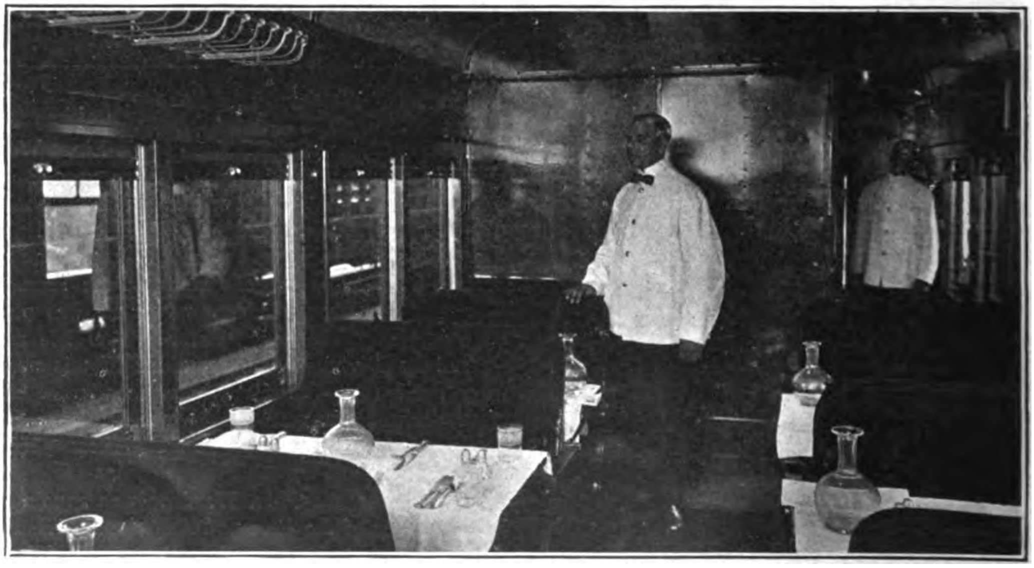
The new car is intended for use on trains where a dining car is not warranted by the travel. The buffet occupies about eight feet of space at one end of the car and is similar to those installed in broiler buffet Pullman cars, but is of an improved type, alcohol broilers being used instead of coal fires.

Meals will be served on tables placed between the seats, with the outer ends resting on the arms. Both single and double tables are provided, the latter being used where two seats are turned to face each other. With a double table, a party of four can eat together. No extra fare will be charged for riding in the coach cafe car; in fact, it will be in the regular service as an ordinary day coach.

The car has a seating capacity of 70, and except for the buffet it is exactly like the heavy modern steel day coaches used by the Pennsylvania Railroad. It has been completed at the company's shops at Altoona, Pa., and is now in the West Philadelphia yards for inspection.

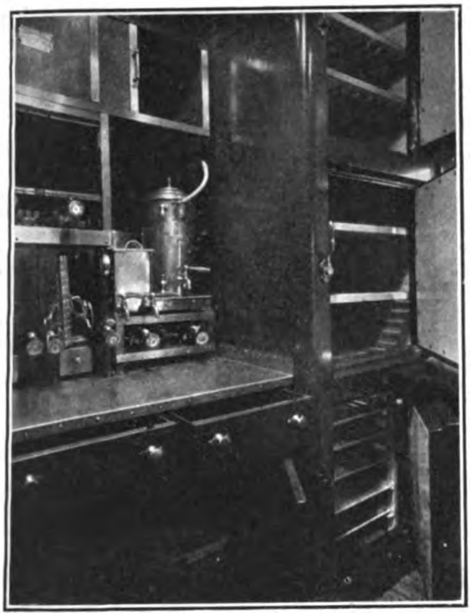
A supplementary use for the coach cafe car will be to serve breakfasts in sleeping cars on the same train, where no buffets or dining cars are provided.

The new cafe car will first be placed in service



COACH CAFE CAR.

This is an ordinary through service day coach, in the end of which a broiler buffet has been constructed. A cook and a waiter will serve the food.



Kitchen of the Coach Cafe Car of the Pennsylvania Railroad.

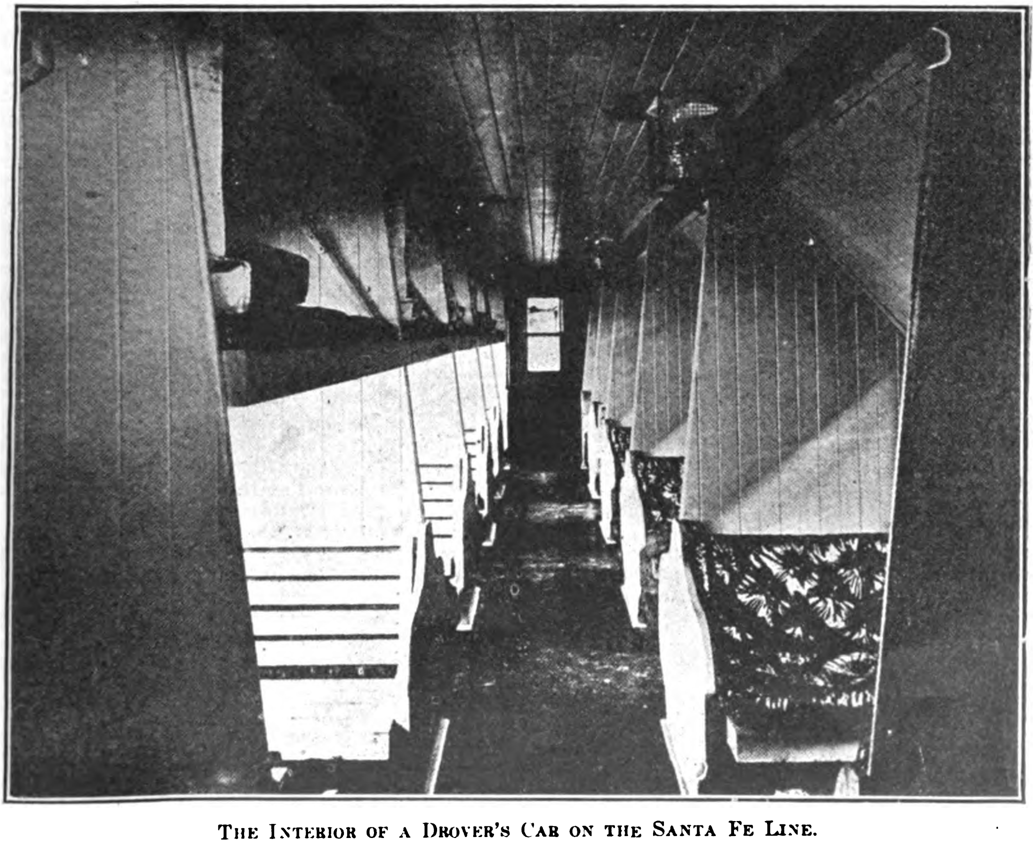
on July 1st, between Kane, Pa., and Erie, Pa., on trains Nos. 39 and 54. These are through trains between Philadelphia and Erie.

Improving the Service in the Handling of Live Stock.

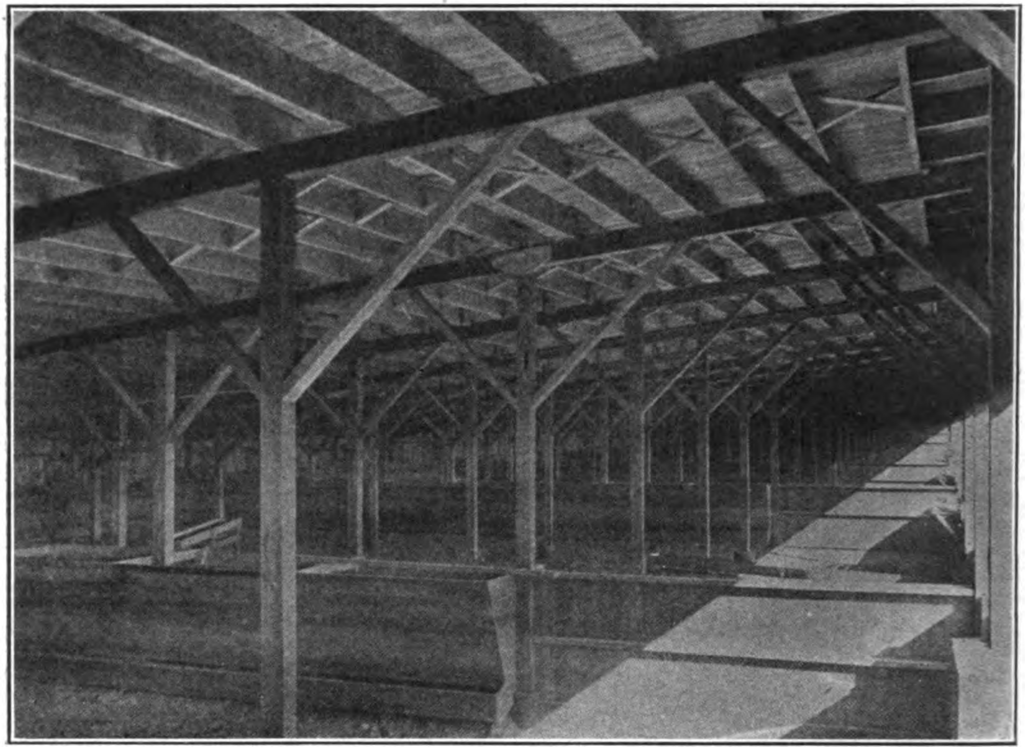
An interesting article appears in the "Santa Fe Magazine" for July, by F. S. Brooks, general live stock agent at Kansas City, on the method employed by the Santa Fe and other Western roads on the improvement of service in the handling of live stock. Attention is called to the fact that this system handled annually about 115,000 carloads of live stock of all kinds and ages and it is no small task as he points out, to start movement with such supervision as will insure proper care as well as expedite the handling to obviate heavy losses to the owners by shrinkage and by fluctuating markets.

Great improvements have recently been made in the handling of this class of traffic which has led to the restoration of confidence in the company on the part of its patrons and the elimination of burdensome loss and damage claims.

The Santa Fe System maintains an extensive department devoted to the supervision and handling of live stock traffic. This department, through a series of reports, is informed at all times as to the live stock service over any portion of the system. It also handles the live stock loss and damage claims, as does the freight claim agent of any railroad company. It has devised a system whereby the claims become a potential factor in the betterment of the service rather than being paid and filed away like so much cordwood.



The Interior of a Drover's Car on the Santa Fe Line.
They are claimed to be the cleanest and most comfortably provided on any road.



General View of the Well-Kept Live Stock Sheds on the Santa Fe in which Sheep are Housed to Protect them from the Weather. The Facilities Include a $50,000 Elevator Complete with Modern Equipment and Barns for Holding Alfalfa and Hay.

To illustrate: If one hundred claims are adjusted through the month of March, the money expended is charged to the division responsible for the cause, or causes, contributing to the payment. A report is compiled each month indicating the amount apportioned to each division on the system, and, by the use of symbols, the leading causes for the payments are shown. The division operating officer always is anxious to keep his operating expenses at the lowest minimum possible; therefore the monthly receipt of this statement, showing so many dollars charged to his division, arouses his interest. Moreover, it creates friendly rivalry as between divisions, since each division strives to do better than the other in the matter of keeping down claim charges, and the interest thus stimulated finds its reflection in our live stock service and a substantial decrease in claim payments.

The operating officers, by divisions, hold monthly meetings to discuss the claim situation and consider corrective measures in transportation methods, and the extent of the progress accomplished on the system may well be illustrated by a few figures, beginning with the dawn of the reform:

Fiscal Year		Revenue	Cars	Claims Paid	Average Per Car
1910	.....	$3,905,785	94,792	$278,035.56	$2.93
1911	.....	4 159,812	103,461	245,490.60	2.37
1912	.....	3,777,798	97,155	189,993.52	1.95
1913	.....	4,487,360	114,474	169,395.00	1.47
1914	.....	4,265,393	108,482	135,677.71	1.25
1915	(fis. yr. to Feb.28)		65,643	77,419.98	1.17

It will be observed that the claim payments have decreased steadily as the result of uniform train service, rather than from any pyrotechnical performance, but we are not yet satisfied with the results accomplished, for it is difficult to estimate the damage sustained by live stock, and the shippers to whom we paid the several amounts contributing to the large total probably suffered greater loss than reflected in the actual payment.

Eternal vigilance is the watchword of improved claim conditions, and the homely maxim, "The mistakes of yesterday are the guide posts of to-day and the wisdom of to-morrow," truly reflects the newly created atmosphere permeating the rank and file of our operating organization.

In order to insure maximum results in the handling of live stock, it is quite as indispensable to enjoy the co-operation of live stock patrons as it is to have the support of the operating organization of a railroad.

The live stock trains are so scheduled as to arrive at the market centers in ample time for the benefit of the early morning market, and current instructions comprehend the observance of the schedules by trainmen and others. In order to operate our trains on schedule the shipper must co-operate with the railroad by having the live stock in the yards assorted and ready for loading.

A serious problem confronting the carrier today is the disposition of the live stock shipper to manipulate live stock transportation contrary to the published tariffs on file with state or federal regulating bodies, and obviously, therefore, the law. This condition of affairs is becoming serious, as our cabooses are crowded beyond their capacity, interfering with the duties of the trainmen and augmenting the hazard of personal injury by the presence of so many men who have had no experience in freight train riding.

In our campaign looking to improvement of the service, we did not overlook overhauling our transit feed yards by the installation of modern feeding and watering facilities, concrete flooring for the yards and sufficient electric lights—all of those features which we felt were necessary to the peculiarities of the traffic, having in mind the excited condition of the animals and the inherent disposition to shrink more rapidly under abnormal than under normal conditions.

In this connection only recently we installed a sheep feeding plant at Emporia, Kan., equipped with self-feeders, shearing machines and an elevator for the storage of grain, at an expense of fifty thousand dollars. The barns are well ventilated and electric lighted throughout, shearing machines and elevators are operated by electric power, and the alleys and runways are concreted. The plant is provided to serve the feeder of sheep who has stopped his consignment there for the purpose of recovering the shrinkage lost on the trail and in transit before placing on the market for sale.

It may not be inappropriate to add that the management has under consideration the advisability of increasing sheep feeding facilities to double the present capacity, at an outlay of about forty thousand dollars.

The accommodations for the unloading, feeding and reloading of cattle at Emporia are in keeping with the intention of the Santa Fe to maintain the most modern facilities to be found anywhere in the western territory. One hundred and fifty thousand dollars have been spent in the construction of the cattle pens and the sheep pens and barns and other facilities, and this investment will probably be increased to two hundred thousand dollars in the near future.

I hold no brief for the live stock man, but I do take this occasion to say that the live stock and allied interests are represented by the biggest hearted individuals with whom I ever have transacted railroad business, and, I think I may say, the most appreciative of fair dealing. Indeed, a satisfied live stock shipper—inveterate traveler that he is—becomes the most effective solicitor I ever have known for a railroad, since, the praises of his particular railroad are sung loud and long in every corner of the country in which he ranges.

A Record to be Proud of.

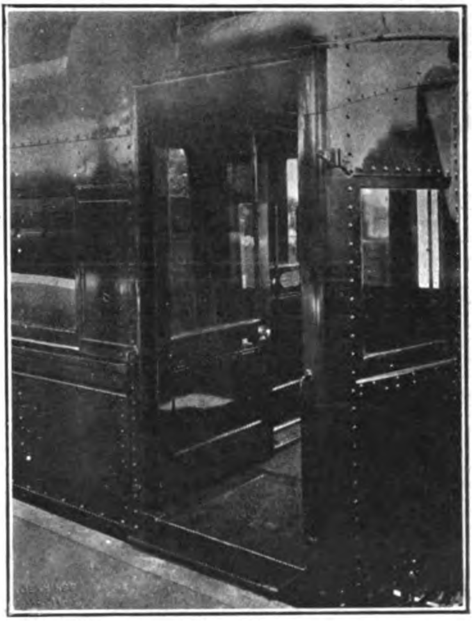
RECORDS just closed for the year ending June 30th, show that in that period the Pennsylvania Railroad System carried approximately 180,000,000 passengers and not one was killed in a train accident.

These records cover the entire system, with its more than 26,000 miles of track, located in thirteen states, including the Lines East of Pittsburgh, the Long Island Railroad, the Cumberland Valley Railroad, the New York, Philadelphia and Norfolk Railroad, the Baltimore, Chesapeake and Atlantic Railway, the Maryland, Delaware and Virginia Railway, the Lines West of Pittsburgh, the Vandalia Railroad and the Grand Rapids and Indiana Railway. The Pennsylvania System operates some 113,000 passenger trains every month.

On the Lines East of Pittsburgh and Erie, consisting of the Pennsylvania, the Philadelphia, Baltimore and Washington, and the West Jersey and Seashore Railroads, not a single one of more than 265,000,000 passengers carried in the past two years and a half has been killed in a train accident. The last train accident in which a passenger was killed occurred at Glen Loch, Pa., in November, 1912.

An Extending Trap Door.

ADDED safety was the object when the Pennsylvania Railroad equipped recently for trial, a steel vestibule car with an extending trap door as shown in the accompanying illustration. This was designed to bridge the gap between the car floor and station platforms, where the latter are on a level with the car floor. There are such platforms at North Philadelphia Station, Manhattan Transfer and Pennsylvania Station, New York City.



To Bridge Gaps between High Platforms and Car, the Pennsylvania Railroad is Experimenting with a Sliding Extension to the Trap Door as Indicated in Illustration.

When the trap door is down the opening of the vestibule door causes a sliding portion to extend to the edge of the platform. When the vestibule door is closed, it returns the same. A simple arrangement disengages the connection between the extension and the vestibule door when the extension is not needed.

Southern Railway's Passenger Record.

MORE than 16,500,000 passengers were transported by the Southern Railway during the year ended June 30th, with only one fatal injury to a passenger, while on a train and that one was standing on a car platform in direct violation of the company's rules. Of this great number of passengers, not one was killed in a train accident. These figures indicate a high degree of safety which has been attained in the handling of Southern Railway passenger trains and are in marked contrast with figures recently given out by President Harrison, showing that during the same period twelve persons riding in automobiles were killed in accidents at public highway crossings, every one of which accidents could have been prevented had the driver of the car observed the familiar warning—"Stop, Look and Listen."

Safety for Men in Maintenance of Way Department.

THE following bulletin was recently issued by the Safety Supervisor of the El Paso and Southwestern System to all maintenance of way employes.

"Your work is the most important in the operation of a railroad, and, like the woman of the family, your work is never done.

"Your work is where the safety of the railroad begins and your first thought should be safety. About one-fourth of all the employes on the railroad are in the maintenance of way department, so it is up to you to stop the accidents. Recently the greatest number of accidents has been in your department. They are small accidents, but they count just the same.

"It is strictly up to you, Foreman, to teach your men to be careful. Eternal vigilance is the price of safety, so you must watch your men all the time and keep preaching SAFETY FIRST. You foremen have few accidents yourselves, which shows that you are careful, but you should also be careful of your men. Think of their wives and families. Look out for hand-car and motor accidents. See that your men are careful when handling ties, rails and tools.

"Fill out the attached card with some safety suggestion and send it in.

"The best safety device is a careful man.

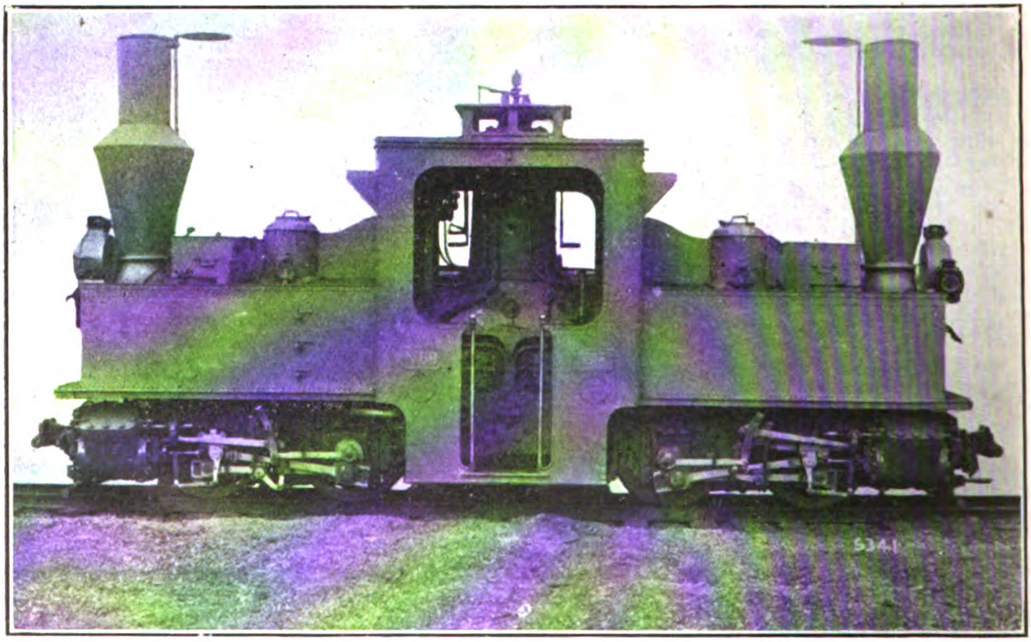
"Safety First! Be Careful Always!"

Mechanical

Narrow Gauge Locomotives for the French Government.

THE Baldwin Locomotive Works has recently manufactured for the French Government, one hundred miniature locomotives for trench warfare. These run on tracks two feet wide and drag two cars to a train. The cars are loaded with shot and shell to be distributed to the troops in the trenches and the engines and equipment are so designed that they can go through tunnels and thus remain hidden from the sharp eyes of the German scouts. The engines are of the Pechot type, with 0-4-4-0 wheel arrangement. They are named after their designer and are generally similar in construction to the Fairlie type.

The locomotive is carried on two steam trucks or bogies, and is provided with a boiler having two barrels, or cylindrical sections, and two fireboxes. The latter are placed in a single outside shell, which is located between the bogies. Such a locomotive is exceedingly flexible, but has certain complicated features which have always been considered undesirable in American practice; and previous attempts to introduce engines of this type in the United States have proved unsuccessful. Their use abroad has been confined to roads where curves are frequent



A NARROW GAUGE LOCOMOTIVE BUILT FOR THE FRENCH GOVERNMENT BY THE BALDWIN LOCOMOTIVE WORKS FOR TRENCH SERVICE.

and sharp, necessitating locomotives of unusual flexibility.

In the locomotives now under notice, the boiler has a steel shell, while the inside fireboxes are of copper and the tubes of brass. Each boiler barrel contains a separate set of tubes, and there is a smokebox and stack at each end of the locomotive. The steam dome is placed above the fireboxes. It contains two throttle valves, one of which communicates with the cylinders of each bogie. Steam is normally admitted to all four cylinders; but if desired, the locomotive can be operated by one bogie only. The boiler barrels are supported by saddles, placed directly over the bogie center pins; while the firebox shell is supported by two plate frames, which are riveted to the saddles. The boiler simply rests on the saddles, without being attached to them; so that provision is made for expansion and contraction.

The live steam pipes leave the boiler through openings in the bottom, and pass down through the bogie center pins; hence the ball joint in each pipe can be arranged to coincide with the center on which the bogie swivels. The steam distribution is controlled by balanced slide valves, which are driven by Walschaert's motion. Reversing is effected by means of a hand lever.

The cab is located in the center of the locomotive, and the water supply is carried in four tanks placed beside the boiler barrels. The two tanks on the fireman's side are shorter than the others, so that space is provided, adjacent to the cab, for coal bunkers. Each firebox has a side door and is fired independently of the other.

American made equipment includes injectors, whistle, safety valves, lubricator, steam-gauges, headlights and cab and signal lamps. The locomotives are fitted with hand screw-brakes, and with draw-bars of the radial type.

These locomotives were erected at the Eddystone plant, and were subjected to severe tests, each being run under steam for approximately half a day. A special track was built for testing purposes. Each locomotive was shipped complete in one case. The stacks and a few small fittings were removed, but were boxed with the locomotive; so that very little erecting work was necessary on arrival at destination. Considering the fact that these locomotives were built throughout the metric measurements, and were of most unusual design, a quick record for delivery was made; as the order was received on February 1st, and the last engine shipped on April 24th.

A New Standard Gauge Platform Car.

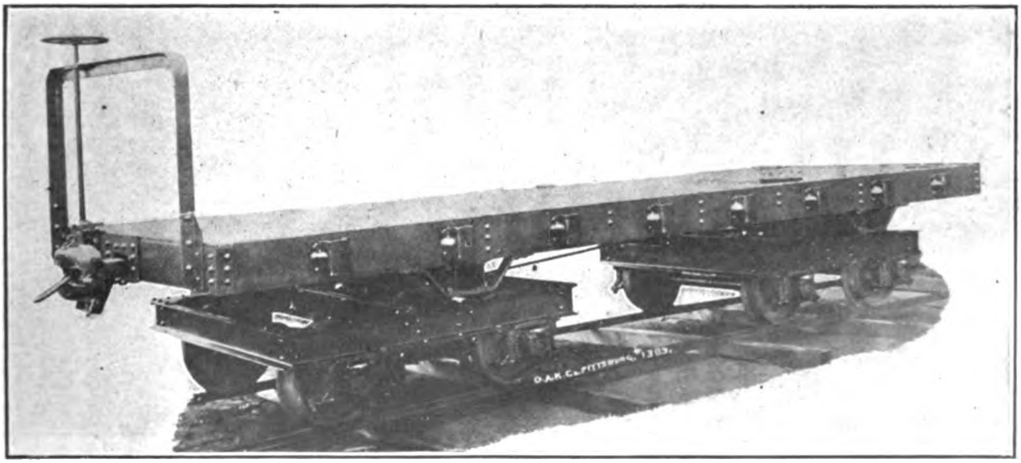
ROLLING stock of different design and construction exists in practically every country on the face of globe to-day, until one becomes accustomed to finding as wide a range in railroad equipment design during a tour of several countries as is found in the scenery and habits of the people. In countries which have their own car building plants, car constructors are not subject to any outside influences for the designs. In the countries which do not possess plants, however, for the manufacture ot such equipment, the design of rolling stock used usually shows a compromise between designs used in the manufacturing countries.

With the destruction of passenger and freight coaches and cars in European countries through the ravages of the war, Germany, France, Belgium and parts of Russia will be entirely dependent upon American car builders for their equipment with which to open railroads upon the close of the war. It is very probable that railroads in these foreign countries will be Americanized and the steel cars of strictly American design will replace the compartment coaches on many of the railroads.

In South America, Australia, and South Africa, cars of many types have been assembled and often in one train a traveler will find a touch of American, French, German and British, when he sees typical cars of those countries all represented in one train.

The accompanying cut shows a Koppel car, manufactured by the Orenstein-Arthur Koppel Company, of Koppel, Pa., of the type which is used in South America and it will be noted that the design is similar to what is ordinarily seen on American railroads, except that the trucks instead of being of the arch bar type, have frames made of structural sections with pedestal and bearings of the type used in European countries.

It is also customary in Europe to provide



Standard Gauge Platform Car Built for South American Railroad.

support for the brake host and this support is invariably found on cars in use in South American countries. The draft gear also is of the link and pin type instead of being automatic according to American practice.

The car shown in the cut is of eight tons capacity and is designed for hauling sugar cane from the plantations to the mills. It is customary for such cars to be made of all steel construction including the floor.

In Central and South America wood cars and wood floors on steel cars have proven very unsatisfactory. For weeks at a time, during the rainy season, the wood is subjected to all the elements of the weather and at other times of the year is warped, stretched and baked by the driving rays of a tropical sun, making it entirely impractical for use in the cane field country.

As a special feature of the design of this car, the patent pressed steel head couplers which are used, are designed so that the link and pin cannot be removed from the couplers, the pin having only enough movement to permit connection with another coupler.

This construction does away with the great disadvantage of the ordinary link and pin couplers, in that the links cannot be stolen or be lost by careless employes.

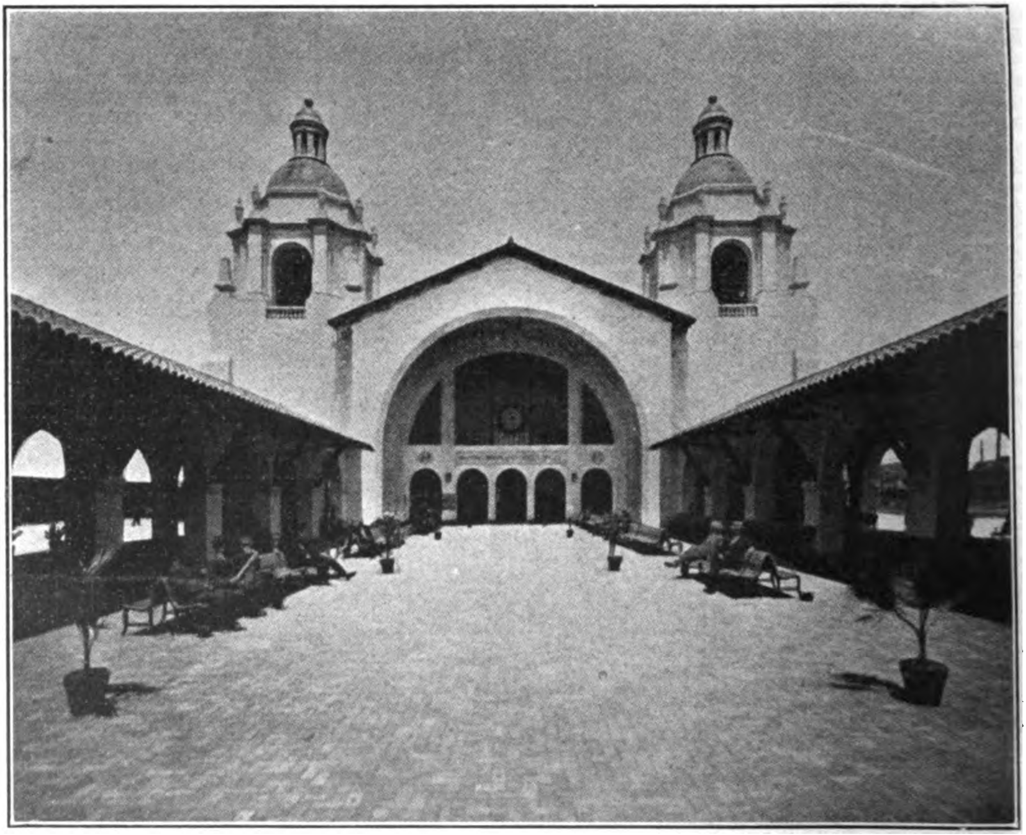
Terminal Improvements

A Great Out Door Waiting Room.

THE accompanying illustration will look rather peculiar to those railroad officials who reside in other sections of the United States where climatic conditions are not so ideal as they are in San Diego. So slight is the change in temperature in this beautiful Californian city and so little is it visited by rainy weather, that the Santa Fe road, in recently building its new handsome station at this terminal, added a large patio which can be used as a waiting room most of the year, although in wet weather ample accommodations are provided within the building. Such evidence of the ideal climatic conditions at this particular point on the Pacific Coast, is most convincing.

Southern Pacific's New Los Angeles Station Opened.

THE Southern Pacific Company's new passenger station on the site of the old Arcade at Los Angeles has been opened to the public. It is one of the most up-to-date in the country, and, with its yards, is designed



THE SANTA FE'S NEW PASSENGER STATION AT SAN DIEGO, SHOWING THE GREAT OUT-DOOR WAITING ROOM PERMITTED BY IDEAL CLIMATE.

to serve a city of one and one-half million population.

The design is the Renaissance type, and the construction of brick, concrete and steel, with the exterior of plaster finish. The over all dimensions are 80x570 feet.

The building may be divided up as follows:

The center portion contains the general waiting room, 80x108 feet, and four smaller rooms, containing women's retiring room, men's smoking room, parcel check room, and telephone exchange.

The ticket office occupies a floor space of 30x23 feet.

The left wing contains a main floor baggage room, and a mezzanine floor baggage room, with two stories of offices above, where the Los Angeles Division officials have their headquarters.

The right wing contains an open waiting room, 48x66 feet, a dining room 52x66 feet, and kitchen and store rooms 30x66 feet. In the basement is a boiler room.

The general waiting room is finished with a tile floor, Alaska marble wainscoting, seven feet high, and walls above of imitation Caen stone finish.

There are four batteries of entrance floors, and five batteries of doors to trains. On each end are balconies, below which women's and men's rest rooms, telephone exchange and parcel check rooms, are located.

The ticket office is a departure from the usual arrangement. No partition or grill work separates the ticket seller from the patrons. The customary ticket case is missing, and tickets are sold from patented, revolving drums, concealed in the counter. The ticket man disposes of the tickets without taking a step, or turning away from his patrons.

Access to the train platforms is had through a tunnel, with an easy incline. The approach to each incline is made by a series of gates and chain railing.

Four umbrella sheds, each with a length of 740 feet, long enough to give shelter to a standard made up train, are built of solid reinforced concrete, absolutely fireproof. The type is the so-called Butterfly type.

The dining room is one of the finest on the Pacific Coast. The counter tops and soda fountains are of the finest white marble, and one section contains large dining room tables and chairs.

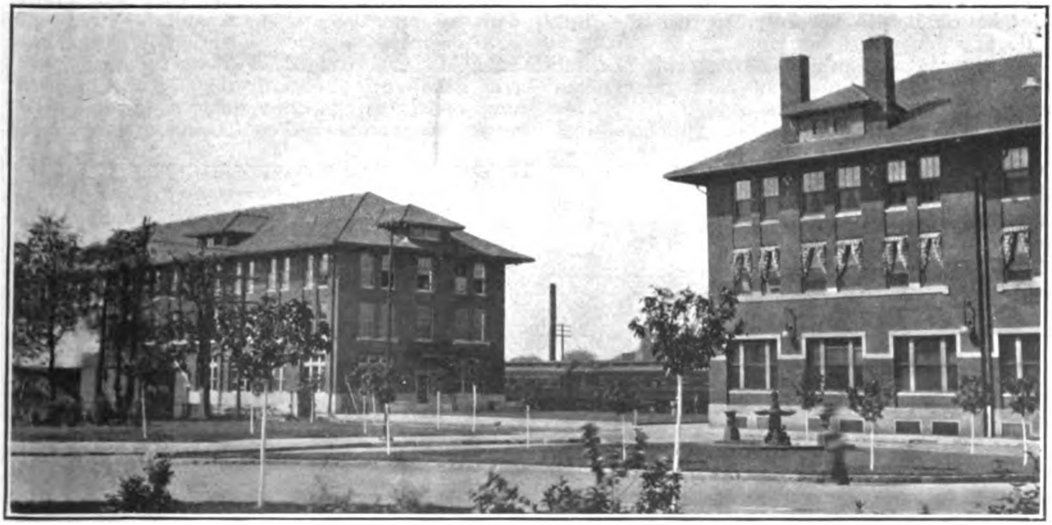
New Freight Terminal for Southern Railway at Spartanburg.

THE Southern Railway is to build at once at Spartanburg, South Carolina, a modern freight terminal consisting of separate inbound and outbound warehouses with ample team track facilities, involving construction to cost in the neighborhood of $100,000. Authority for these improvements has been granted and bids are now being solicited from contractors.

The new facilities will consist of a one story inbound freight house 40x198 feet, with two story office section 40x52 feet, the building to be constructed of brick with concrete floor and fireproof roof, and to be equipped with rolling steel doors; a modern one story outbound freight house 22x250 feet, with concrete floor and base, frame construction and fire-proof roof; four house tracks, with a capacity of 32 cars, and four team tracks with a capacity of 29 cars. Teamways serving both warehouses and the team tracks will be paved with vitrified brick. A 20-ton Pillar crane will also be provided for the handling of heavy freight.

New Office Building of the Missouri, Kansas and Texas at Parsons.

THE Missouri, Kansas & Texas Railway Company completed their new $50,000 brick and concrete office building at Parsons, Kansas, and have removed thereto about 250 employes who were formerly located at St. Louis, Mo., and Denison, Texas. Among the offices now located in the new building are those of the general claim agent, freight claim agent,



THE NEW OFFICE BUILDING AND THE NEW DEPOT OF THE MISSOURI, KANSAS AND TEXAS RECENTLY COMPLETED AT PARSONS, KANSAS. THE OFFICE BUILDING IS THE STRUCTURE TO THE LEFT.

superintendent dining car service, industrial agent, agricultural agent and part of the treasury department. The Valuation Committee, formerly located at St. Louis, will occupy quarters in the new station building at Parsons, and the general freight and passenger agent, superintendent coal department and traveling claim agent will remove from the station building to the new office building. The offices of the general baggage agent and car accountant have removed from Denison to Parsons, and have offices in the new building.

Electrical

Remarkable Performance of Pennsylvania Electric Locomotives.

SOME very interesting figures have just been given out covering the electric locomotives used by the Pennsylvania Railroad on the Manhattan Division, operating passenger trains through tunnels entering New York City under Hudson River.

These locomotives have been in use for nearly four and one-half years and the data given below represents their performance during the period in a very striking manner.

They were designed to start and accelerate a 550-ton train, in addition to the locomotive, on a 1.93 per cent grade in tunnels, but in actual operation, 850-ton trains are frequently started on this grade and trains of fourteen all-steel cars, weighing over 1,000 tons are handled without difficulty.

Each locomotive in service passes over an inspection pit every 24 hours, when a running inspection of machinery is made, similar to that given steam locomotives over the pit, and slight repairs made where necessary. The average time required for this inspection is approximately ten minutes.

After 3,000 miles run, the locomotives are taken into the shop for a general or periodic inspection, when all electrical apparatus is thoroughly gone over, tested, cleaned and necessary adjustments and renewals made to all electrical and mechanical parts.

The stopping of these locomotives for general repairs is governed by tire wear, and a number of locomotives have run from 90,000 to 112,000 miles before it was necessary to turn the tires or do any general repair work.

The general overhauling and repairing of these locomotives is done in one of the regular steam locomotive repair shops.

On November 28, 1914, these 33 locomotives had completed four years' service, and during that period the mileage made and detention record is as follows:

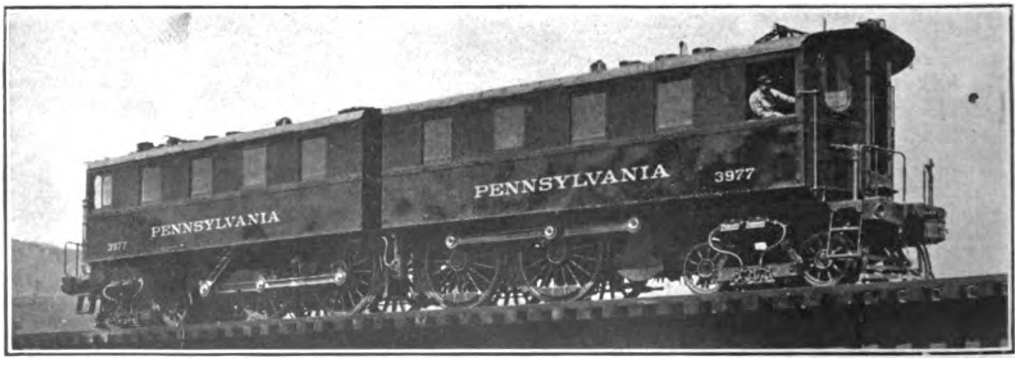
Locomotive-miles	3,974,746
Total Engine Failures	45
Total Minutes' Detention to Trains	271
Locomotive-miles per Detention	88,328
Locomotive-miles per Minute Detention	14,667

During this period, 463,558 train movements were made, or an average of 1300 movements per detention, due to engine failures.

At Manhattan Transfer, where the change is made from steam to electric locomotive, on trains to and from the Pennsylvania Station, the time allowed per schedule for making change, including necessary testing of air brakes, is four minutes; although the entire operation can be performed in three minutes, and has been done in two minutes.

These locomotives are articulated machines, each consisting of two semi-units permanently coupled together, each semi-unit having a four-wheel bogie-truck and two pairs of driving wheels connected by side-rods, the semi-units being permanently coupled together at the driving wheel end. The locomotive frames, driving wheels, trucks and running gear are similar in general character to the standard American type steam locomotive and the relation of the various working parts on the two semi-units is similar in location to two steam locomotives coupled back to back.

Each semi-unit is equipped with 2000-horsepower motor connected to the driving wheels through a system of parallel rods and cranks with an intermediate shaft, and is fitted with unit switches, master controller, Westinghouse automatic and straight air-brake apparatus, electric headlight, pneumatically operated whistle, sand apparatus and other items of lesser importance. The locomotive equipment is so arranged



Third Rail Terminal Locomotives on the Pennsylvania Railroad which Have Made an Enviable Record.

PENNSYLVANIA

ELECTRIC TRAIN ISSUING FROM HUDSON RIVER TUNNEL.

that in the event of one motor being cut out of service, the entire locomotive can be operated from the other cab with the remaining motor. The unit switch control permits two or more locomotives to be coupled and all to be operated from either end of any one cab. The semi-units are interchangeable, and if any semi-units are separated, they can be combined with any two other semi-units, as may be required in making repairs, or for other reasons. The controllers are fitted with four running notches, giving great flexibility of speed regulation, and permitting the most economical use of power during acceleration.

Each motor has a continuous rating of 1000 and a maximum rating of 2000 horsepower, or a total of 4000 horsepower per locomotive. The motors are of the direct-current, field-controlled commutating-pole series type. The weight of each motor complete, including cranks, is 43,000 pounds. The motors are supplied with direct current at 650 volts from the third rail, through contact shoes, located on either side of each truck. The motors, control and the complete electric equipment was furnished by the Westinghouse Electric and Manufacturing Company, while the locomotives were built by the Pennsylvania Railroad in its own shops at Altoona.

The rated tractive power of each locomotive is 66,000 pounds, but in actual service, 79,200 pounds has been registered.

Weight and Dimensions.

Weight of locomotive complete, 156.5 tons; weight of driving axle, 49,750 lbs.; total weight on drivers, 199,000 lbs.; weight on each truck, 57,000 lbs.; total length overall, 64 ft. 11 in.; rigid wheel base of each semi-unit, 7 ft. 2 in.; total wheel base of each semi-unit, 23 ft. 1 in.; total wheel base of each locomotive, 55 ft. 11 in.; total height of locomotive, 14 ft. 8⅛ in.; total height of cab, 13 ft. 1 1-16 in,; total width of cab, 10 ft. 8 in.; diameter of drivers, 72 in.; diameter of truck wheels, 36 in.

Interstate Commerce Commission

Express Companies' Rates Advanced.

THE Commission has decided that the revenues of the principal express companies of the United States are inadequate and modified its former orders to provide additional income.

The fabric of the present express rates is composed of three factors: an allowance of twenty cents for collection and delivery of each shipment, which does not vary with weight or distance; a rail terminal allowance of twenty-five cents per 100 pounds which varies with the weight but not with the distance and the rail transportation rate per 100 pounds, which varies with the weight, the distance and the zone.

In accordance with the petition of the companies, the Commission modified its order to permit transportation of the first and second factors. The effect is to increase the collection and delivery allowance five cents for each shipment and to reduce the rail terminal allowance at the rate of one-twentieth of one cent a pound.

As the weight increases the five-cent increase is gradually reduced, so that on shipments of more than 100 pounds the readjustment will not make any change. Substantially no commodity rates will be affected.

In all events any changed rates will with few exceptions be substantially lower than those prevailing when the Commission established the zone system in February, 1914.

By that means the express companies are expected to increase their gross revenues about 3.86 per cent. The Commission's report shows that the net operating revenues of the four big companies have decreased to a deficit of $1,132,811 in the year 1914-1915, and in the same period operating income decreased $2,449,863.

The Commission declined to change the basis of rates in zone No. 1, the territory east of the Mississippi and north of the Ohio rivers.

Reduction in Railway Accidents.

THE Commission has issued its accident report for the quarter ending March 31, 1915, which shows material decrease in railway accidents during that period, there being 1,650 killed and 35,428 injured in all reported accidents. This included sixty-five killed and 1,972 injured in purely train accidents, 1,517 killed and 11,874 injured in other than train accidents, such as accidents to employes while at work, to passengers getting on or off cars, to trespassers and others, and 68 killed and 21,582 injured in industrial accidents, such as accidents not involved in train operations, but occurring to railway employes other than trainmen on railway premises.

As compared with returns for the corresponding quarter of 1914, the above figures show, for train accidents, a decrease of 55 in the number of persons killed and of 399 injured; for other than train accidents, a decrease of 392 killed and of 3,490 injured and for industrial accidents, a decrease of eleven killed and of 3,097 injured, making a total decrease, all classes, of 458 in the number killed and of 6,986 in the number injured.

The total number of collisions and derailments on steam railways reported for the quarter was 2,391 (763 collisions and 1,628 derailments), of which 100 collisions and 149 derailments affected passenger trains. The damage to cars, engines and roadway caused by these collisions and derailments, including the cost of clearing wrecks, amounted to $1,764,287. These figures show decreases compared with figures reported for the preceding quarter.

As compared with the corresponding quarter of 1914, there was a decrease of 785 in the number of train accidents.

Defective roadway and defective equipment together caused ofr 74.8 per cent of all the derailments reported. Of derailments due to defective roadway, over 21.2 per cent were caused by broken rails, and of the number due to defective equipment, over 28 per cent were caused by defective wheels.

"Spotting" Charge Unjustified.

THE Commission has ruled that the so-called "Spotting" charge of 5½ cents a ton, minimum $2 per car, proposed by principal railroads in Central Freight Association and Trunk Line territories and by New York, New Haven and Hartford Railroad in New England is unjustified and tariffs filed are ordered to be canceled.

This proposed charge was for placing cars for loading and unloading at convenient points on the tracks of industries specifically named. The Commission holds that the proposed charge would apply in many cases to services rendered by the line haul rate. It is also held that to impose the additional charge on the industries named in the proposed tariffs and not upon others for which like services are performed would result in unjust discrimination.

Complaints Against Nevada Roads Dismissed.

IN deciding that existing rates on freight from various points in the United State to points in Nevada on the Tonopah and Goldfield Railroad, Las Vegas and Tonopah Railroad and Bullfrog-Goldfield Railroad are reasonable, the Commission has dismissed twenty or more complaints.

The Commission's decision points out that: there is practically no general freight traffic on the Tonopah and Goldfield Railroad, Bullfrog-Goldfield Railroad, Las Vegas and Tonopah Railroad and Tonopah and Tidewater Railroad north of Ryan, Cal., except the transportation of supplies to Tonopah, Goldfield and Millers, Nev.

The lines of these railroads pass through an arid and mountainous region, barren of timber, and nearly devoid of other vegetation, with severe grades and difficult operating conditions. The scale of wages paid to employes is necessarily higher than in other sections of the United States. The traffic is so light and the revenues are so meager that only one of these roads has been able, since the date of its construction, to meet its operating expenses and fixed charges. The outlook for the future of these lines is not encouraging.

The roads are apparently being operated with reasonable economy consistent with good service. The rates to these Nevada points are on a higher level than the rates for like distances in other parts of the country.

New Haven Boat Decision Held Up.

OWING to the pressure of work, the Commission will not consider the application of the New York, New Haven and Hartford Railroad to retain ownership and operation of its Sound lines, before next fall. Commissioner Clements said that there were so many "pressing" questions to be concluded before the vacation adjournment that the New Haven matter would have to go over until next fall.

Elevation Allowances Canceled.

THE Commission has rendered a decision approving the cancellation of the existing allowance of one cent per bushel for elevation at Kansas City, St. Louis, Des Moines, Fort Worth, Omaha and other cities, of grain and seeds, when not for export, destined to all points west and southwest of the Missouri River, and in Louisiana west of the Mississippi River. The Commission pointed out in this decision that the evidence presented by the railroads establishes prima facie that, in general, under present conditions elevation is not necessary incident to the transportation involved in these movements.

The cancellation will take effect on August 15. They will not apply upon shipments to the Mississippi River crossings or points taking the same rates, or to points east thereof, or upon any shipments when for export, for the reason that other carriers, having no lines west of the Missouri River, propose to continue their allowances upon such shipments, and the respondent railroads do not wish to withdraw from the eastbound or export traffic

The cancellation of the elevation allowances in this instance is interperted as an invitation the Commission holds out to all the railroads of the country. In approving the new tariffs of the Western roads, it is believed that the Commission wishes to indicate to all railroads through the country what they may do under similar circumstances.

St. Louis Southwestern Rate Case.

THE Commission has reiterated its finding that the St. Louis Southwestern and other railroads should not charge higher rates from Shreveport, La., to eastern Texas points than from eastern Texas points to Shreveport. To do so would be a discrimination, the Commission held. Western classification tariffs the Commission stated should govern the rating from eastern Texas points to Shreveport.

The operation of "off-track" freight stations maintained by transfer companies in St. Louis as public freight stations was held to be lawful by the Commission. The practice of constructive receipt and delivery of traffic at incorporeal stations at undefined points on the west bank of the Mississippi River was found to be unavailable to all shippers and therefore condemned.

"Trap" Car Decision.

THE Commission has handed down a decision holding that the proposed charges for trap or ferry service in Trunk Line and Central Freight Association, Western Trunk Line, trans-Missouri and Southwestern territories and Chicago, are not justified This upsets a theory of Mr. Louis Brandeis who contended in the last Eastern rate advance hearing that charges of such a character would approximately add $50,000,000 a year to the revenues of the railroads, thereby obviating the necessity of a general increase of five per cent in freight rates. Protests were filed by hundreds of business concerns in 85 cities in a territory lying west of New England, north of the Potomac and Ohio rivers, east of the Mississippi River and also that part west of the Mississipi River and east of the Rocky Mountains, including Southwestern territory

The decision in this case while admitting that a charge should be made for certain trap car services, declares that the discriminations resulting from the present schedules providing for trap car charges is due to the fact that they are inartificially drawn and not in harmony with one another.

Industrial Line Decision Reversed.

A LITTLE more than a year ago, while the Eastern rate case was pending, the Commission threw what looked and sounded like a bombshell into the railroad camp by finding that the Eastern roads were dividing up through rates with certain industrial railways to an amount estimated by Commissioner Harlan at upwards of $15,000,000 a year. About the same time the Commission instituted an investigation of the practice on the part of the trunk lines of "spotting" cars on sidetracks, private industry tracks and industrial railways.

The Commission expressly stated that these matters were directly connected with the pending advance rate case, as it appeared that the trunk lines were dissipating their revenues unnecessarily by unjustifiable divisions of through rates with industrial railways which, while ostensibly common carriers, were in reality nothing else than plant facilities; and by performing a great variety of car placements and movements free of charge.

The railroads were directed to take steps to reform their practices. They did so by filing amended schedules canceling allowances to the industrial railways out of the through rate, and other schedules imposing a "spotting" charge of 5½ cents per ton, minimum of $2 per car. Both seas of new schedules were suspended by the Commission pending specific investigation thereof, the Commission so following its usual course with all new schedules.

Now the Commission has ordered the railroads to withdraw the suspended schedules which sought to impose the spotting charges and also those which canceled the allowances to industrial railways. Both of these latest decisions were written by Commissioner Myer, who seems to have exerted himself to reach the decision he did without flatly reversing the Commission's previous findings. How well he succeeded, at least as far as the Commission's general attitude in the matter is concerned, is indicated by the fact that Commissioner Harlan, who wrote the earlier decisions, dissents from these and promises a written dissenting opinion.

The decision affects one hundred and forty-four railways in Official Classification territory and fixes the status of these rates generally as that of common carriers, and requires trunk lines, of which these industrial lines are feeders, to restore through routes and joint rates and in other ways treat the industrial lines as common carriers entitled to share in the rates, proportionate to the service rendered.

The longest industrial line affected by the order is the Algoma Central and Hudson Bay, which has a mileage of 380 miles. The shortest is the Toledo, Angolia and Western, which has a trackage of a little more than eleven miles.

The case was submitted to the Commission in February. It grew out of the action of the trunk lines in filing tariffs which canceled joint rates with and allowances to all industrially owned lines.

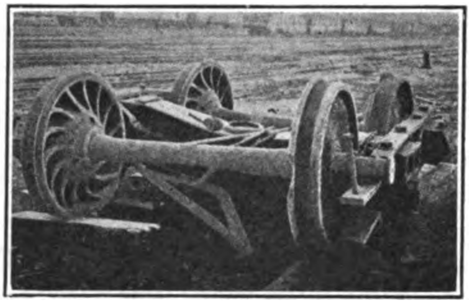
A Through Rate Ruling.

EFFORTS of freight shippers to secure transportation service from the railroads on through interstate traffic at less than through rates, by first billing their shipments to an intermediate point within the intrastate rate limits and then rebilling to the intended destination in an adjoining State, have been declared unlawful by a ruling announced by the Commission.

Traffic managers of large corporations, whose duty it is constantly to seek ways of economizing on freight bills, are greatly interested in the ruling, inasmuch as it may affect practices of reconsigning freight from this city to many points in the Southeast and Southwest territories. The Commission holds, in brief, that a shipper has no legal right to evade the lawfully established and published through rate on a shipment moving between points in adjoining States by arranging to bill the shipment on the local rates to and from an intermediate point, instead of using through billing to an ultimate destination.

Investigation of Accident on the Chicago, Milwaukee and St. Paul Railway.

ON February 9, 1915, there was a derailment of a freight train on the Chicago, Milwaukee & St. Paul Railway at Oakwood, Wis., which resulted in the derailment of 29 cars, 11 of which, together with the station build-



Truck of Missouri, Kansas and Texas box car showing worn spots on treads of two right-hand wheels and flange fractures of three wheels.

ing, were destroyed by fire. After investigation as to the nature and cause of this accident, I beg to submit the following report:

The division on which this accident occurred is a double-track line, trains being operated under the automatic block-signal system. Approaching the point of derailment from the east the track is straight, with a slight descending grade. The weather was clear.

The train involved in this accident was westbound freight train extra 8167, consisting of 75 cars and a caboose, hauled by locomotive 8167, and was in charge of Conductor Jones and Engineman Christoph. It left Galewood, Ill., at 7.25 P. M., and at about 10.33 P. M. was derailed at the frog of the house-track switch near the station at Oakwood, while moving at a speed estimated to have been about 25 miles per hour.

Examination of the track showed that the first indication of anything wrong was at a point about one mile east of Oakwood, where an oil box, brass, packing waste, etc., were found on the east side of the track. About 370 feet west of this point the rear truck under Missouri, Kansas & Texas box car No. 60628, the tenth car in the train, left the rails and ran along on the ties until the frog at the house track was reached, where the other 28 cars were derailed. The oil box, etc., were found to have come from the rear truck of the box car, the partial destruction of the truck at this point evidently having been due to the defective condition of the wheels under the truck. Three of the four wheels were defective, the left forward wheel being the only one intact. The others had flat spots, broken flanges, etc.

SUMMARY.

The examination of the wheels in the truck which was under Missouri, Kansas & Texas box car No. 60628 clearly fixed the immediate responsibility for this derailment on the worn treads of two of the wheels. These flat spots were not "slid flat" places, but were grooves 11 inches long each, worn in the treads, and having depths of three-eighths and five-sixteenths of an inch, respectively. The grooves were wider than the head of a 100-pound rail. The axles drifted to the right, in the direction of these wheels, which showed worn flanges, approaching vertical faces.

The examination also revealed the fact that these wheels had less depth of chill than customary in wheels of this type, and at the worn spots the chilled metal was entirely absent.

The lack of rotundity of the wheels was such that excessive wabbling of the journals occurred at every rotation, bringing undue strains on the truck frame. At usual speeds these oscillations took place several times a second, and they are believed to have been the cause of the injury to the truck and the immediate forerunner of the derailment.

Furthermore, the mated wheels were of different sizes. Those on the right-hand ends of the axles were three and four "tape sizes" smaller, respectively, than the left-hand wheels. These differences would tend to cause the truck to run in an oblique position, not square with the track, and also be equivalent of a certain amount of braking power set against the train.

A conspicuous feature associated with conditions of these wheels is the fact that the inspections which had been made from time to time failed to detect the presence of the flat spots. These defects in the treads were undoubtedly of long standing, and the car must have passed quite a number of inspections since the wheels had become unserviceable. These defects were of such a nature that they should have been discovered by ordinary inspection.

In a previous report covering the investigation of a derailment of a passenger train, due to a broken wheel, attention was called to the alarming frequency of accidents due to broken wheels, and statistics covering a five-year period were published, showing that during that period the derailments attributable to defective wheels were approximately 31 per cent of the total number of derailments charged to defective equipment. In the Commission's Accident Bulletin No. 52, there is published a summary of derailments due to defects of equipment on steam railways for 13 years ending June 30, 1914. This summary shows that of 37,456 derailments due to equipment defects 12,882, or more than 34 per cent of the whole, were caused by defective wheels. The property loss suffered by the railroads on account of these 37,456 derailments was $30,138,241, of which sum $12,506,766, or about 41.5 per cent of the whole, was attributed to derailments caused by defective wheels.

These figures indicate that defective wheels constitute one of the most prominent causes of derailments. In the interest of safety, as well as of economy, steps should be taken by the railroads to insure that sound wheels will be obtained from the manufacturers in the first instance: and methods of inspection should be adopted to prevent the placing in service of defective wheels and insure that wheels which have become defective through service shall be removed in ample time to provide for the safe operation of trains.

Recent Orders.

THE following orders relating to the posting of tariffs at stations and the suspension of railroad schedules, were issued by the Commission during June:

It appearing, That after the Commission has suspended the operation of a schedule and deferred the use of a new rate, fare, charge, classification, regulation, or practice stated therein, thereby continuing in force, temporarily, the rate, fare, charge or other tariff provision in effect at the time, tariff-issuing officers of carriers have not infrequently filed other and different schedules stating new rates, fares, charges or other tariff provisions which are changes in those so temporarily continued in force and effect;

It appearing, From numerous instances which have come to notice in the experience of the Commission or have been brought to its attention by informal complaints, that the spirit of the law and of the Commission's order of suspension is evaded by such action, and troublesome complications are thereby created;

It is ordered, That when the Commission has suspended a schedule and deferred the use of a rate, fare, charge, classification, regulation or practice stated therein, the rate, fare or charge thereby continued in effect shall not be increased, and the classification, regulation or practice stated therein shall not be changed, by any subsequent schedule, until the suspension proceeding has been disposed of or the period of suspension, and of any extension thereof, has expired, unless such change is specifically authorized by special order of the Commission.

It is further ordered, That Rule 9 (k) of the Commission's Tariff Circular 18-A be amended by inserting in the tenth paragraph thereof the substance of this order.

It is further ordered, That a copy of this order be served upon all carriers subject to the provisions of the act to regulate commerce.

It is further ordered, That this order shall be in effect from and after July 15, 1915.

In the Matter of Modification of the Provisions of Section Six of the Act with Regard to Posting Tariffs at Stations.

It appearing, That no uniform or adequate plan has been adopted and followed by the carriers under which the date upon which a given tariff or supplement to a tariff is received for posting at a station at which it is required to be posted;

It is ordered, That the Commission's order of June 2nd, 1908, relative to posting tariffs, be, and the same is hereby, amended by adding thereto the following:

Every carrier subject to the provisions of the act to regulate commerce shall require its agent or other representative at every station, warehouse or office at which tariffs are required to be posted, upon receipt of a tariff or supplement to a tariff for filing and posting at that station, to immediately write or stamp upon the title page of such publication the date upon which it was received by such agent or other representative, and to keep and preserve a separate record, by I. C. C. numbers and supplement numbers, of the receipt of each tariff or supplement to a tariff, showing the date received and the date posted.

It is further ordered, That this amendment to the said order of June 2, 1908, shall be effective from and after July 15, 1915.

It is further ordered, That a copy of this order be served upon all carriers subject to the provisions of the act to regulate commerce.

This order modifies said order of June 2, 1908, only to the extent herein specified.

STATE COMMISSIONS.

California.— The State Railroad Commission has recently handed down a decision upholding the right of the railroads to charge and collect additional train fares from passengers boarding the trains at agency stations without tickets, when opportunity to purchase tickets has been given. In making the decision the Commission called attention to the fact that most of the states have by statute or by orders of Commissions conferred upon carriers the right to charge and collect train rates or excess fares and it has been held repeatedly by the courts that where the common carrier provides an opportunity for passengers to purchase tickets, it is not illegal for it to enforce a penalty when passengers ignore such opportunity.

New York.—The first step in the appeal from the recent decision of the up-State Public Service Commission, denying the Ulster & Delaware Railroad permission to raise its mileage rate above the two cent maximum set by the legislature, was taken on July 16th, when the Commission formally denied the road's application for a rehearing.

In the order denying the rehearing it is made clear that the Commission refused the proposed increase only on the ground that it did not have the power to grant it.

"While the Commission is of the opinion," says the order, "that the rate complained of is insufficient to yield reasonable compensation for the service rendered, yet the Commission, as set forth in its order of July 6, 1915, is of the opinion that it has no jurisdiction to grant the increase."

The question of jurisdiction, involving an authoritative determination as to whether the legislature of 1907 gave the Commission all power over rates irrespective of the acts of the legislature in setting maximums, may now therefore be presented to the courts. It is not unlikely that in the meantime either the constitutional convention or the legislature may define these powers of the Commission anew so as to remove all future doubt of their scope.

On an opinion by Commissioner Hodson, the up-State Public Service Commission has settled the Salamanca grade crossing case, which has been before the Commission for a long time and which involves a new interpretation of the grade crossing law. Commissioner Hodson in his opinion holds that where, as in the present case, changes concededly needed in the railroad structure of an existing grade crossing are of such a nature as to relate back to the original plans for the elimination of the crossing they cannot be considered as maintenance and repair under the law, for which the railroad alone would have to pay; but must be considered as changes in the said original plans, the cost of which, like the original work, must be divided among the municipality, the state and the railroad. The opinion also points out that as the present proceeding was brought before the Commission was given power by the legislature of 1914 to order changes in existing grade crossings, there is doubt as to the Commission's power in the present instance. He therefore recommends that the present proceeding be dismissed and that a new proceeding be brought by the Salamanca authorities under the amended grade crossing law. This, he says, would be the promptest method to afford relief to Salamanca as the railroad is ready to go ahead with the work and the Commission is ready to order it.

GENERAL NEWS NOTES.

Wabash Railroad Sold at Auction.—The first step in a plan for reorganization of the Wabash Railroad and taking it out of the hands of receivers, was carried into effect on July 21st, when a purchasing committee of the joint reorganization committee of the road's creditors bought the entire $220,000,000 system with all its assets and liabilities for $18,000,000.

The Wabash Railroad was sold at public auction under foreclosure to satisfy a $41,000,000 mortgage held by the Equitable Trust Company of New York. Robert Goelet and Henry Rogers Winthrop, of New York, the purchasing committee of the creditors, presented the only bid offered for the road.

Southern Railway Employes Felicitated.—Every officer and employe of Southern Railway Company received a telegram from President Fairfax Harrison, expressing his appreciation of and pride in the work accomplished by the entire organization during the fiscal year closing June 30th. The telegram was as follows:

"To All Officers and Employes: We are closing to-day a fiscal year which has been full of anxiety and difficulty, but through team work and loyal self-sacrifices and effort by the entire organization we have come out of it sound and full of courage for the future. This result has not been due to any one man or to any one group of men, but to the co-operation of every man who has recognized the problem and given us in our common duty the best that was in him. I send my personal thanks then to every one of you. The fight is not yet over but the spirit of the past ten months is bound to see us through. Meanwhile, I want you to know my pride in you and what has been done already."

Growth of American Merchant Marine.—Merchant vessels built in the United States and officially numbered by the Bureau of Navigation, Department of Commerce, during the fiscal year ended June 30, 1915, were 1226 of 215,711 gross tons compared with 1291 of 311,578 gross tons for the fiscal year 1914.

During the past ten months, however, under the Ship Registry Act of August 18, 1914, to the American merchant fleet, 147 foreign built vessels of 528,907 gross tons have been added, making the total for the year from both sources 1,373 vessels of 744,618 gross tons.

This tonnage is the largest annual addition to the American merchant fleet in the history of the United States. In 1908 the total increase was 718,683 gross tons, in 1907, it was 596,708 gross tons, and in 1855 it was 586,102 gross tons.

The losses to the merchant fleet for the past year have not all been reported, but for the first nine months they number 1062 vessels of 195,052 gross tons.

A Valuable Railroad Ticket.— Possibly the most valuable ticket ever issued by a transportation company was that issued on July 2nd, by the Chesapeake & Ohio Railway to the "Richmond Blues," covering their journey to the Pacific Coast, one ticket being issued covering the movement of 185 men, the value being $17,800.

Imports, Exports and Balance of Trade.—Figures made public by the Department of Commerce show that May, 1915, imports totaled $142,284,851 against $164,281,515 in May last year and $133,723,713 in May, 1913. May exports exceeded by $79,160,671 the largest May record previously made, being $273,768,093 against $194,607,422 in May, 1913, and $161,732,619 in May last year.

Of the May, 1915, imports, 60.0 per cent entered free of duty, compared with 62.8 per cent in May, 1914, and 51.6 per cent in May, 1913.

In the eleven months ending with May, 1915, imports aggregated $1,516,474,600 and exports $2,499,592,079, the figures representing in the case of imports a decrease of $219,921,607 or 12.5 per cent, and in the case of exports an increase of $292,084,975, or 13.2 per cent when compared with a like period a year earlier.

The figures for the eleven months ending May 31, 1915, show a favorable balance on merchandise transactions of $983,117,479. As thirteen ports which ordinarily handle 90 per cent of the country's foreign trade show for June an export balance of approximately $60,000,000, it is now known that the excess of exports over imports of merchandise has at this date exceeded $1,000,000,000 surpassing by nearly $400,000,000 the highest record heretofore made.

The inward flow of gold which became pronounced about the commencement of the current year continued in May at an accelerated rate, imports amounting to $31,136,311, against $1,972,411 in May, 1914. Gold exports totaled $1,277,554, compared with $16,835,202 in May, 1914. In the eleven months ending May 31, 1915, gold imports totaled $119,227,015, an increase of $56,505,468; while gold exports aggregated $143,402,160, an increase of $79,470,695 over a like period one year ago.

Of the total exports from this country during the last calendar year, New York handled 39 per cent. Its share of the imports was 54 per cent and of the total foreign trade of the country 46 per cent.

The total foreign commerce of the United States in 1914 amounted to $4,903,000,000, of which $2,114,000,000 was exports and $1,789,000,000 imports. Statistics of the principal custom districts follow, comparison with other years being unavailable, owing to the reorganization of the customs service at the beginning of the fiscal year:

Districts	Exports	Imports
New York	$833,000,000	$974,000,000
Galveston	197,000,000	12,000,000
New Orleans	181,000,000	80,000,000
Baltimore	107,000,000	30,000,000
Detroit	95,000,000	26,000,000
Buffalo	75,000,000	30,000,000
Boston	72,000,000	163,000,000
Philadelphia	66,000,000	88,000,000
San Francisco	66,000,000	70,000,000
Georgia	52,000,000	6,000,000
Washington	48,000,000	63,000,000
Mobile	32,000,000	8,000,000
St. Lawrence	31,000,000	39,000,000
Dakota	30,000,000	12,000,000
Vermont	28,000,000	20,000,000
Port Arthur	28,000,000	1,000,000
Virginia	27,000,000	7,000,000

Florida	26,000,000	8,000,000
Chicago	26,000,000	35,000,000
Oregon	14,000,000	4,000,000
Ohio	13,000,000	10,000,000
Duluth	11,000,000	6,000,000
Other districts	56,000,000	97,000,000
Total	$2,114,000,000	$1,789,000,000

Increase in the Number of Pennsylvania Railroad Stockholders.—A compilation just completed shows that the number of stockholders of the Pennsylvania Railroad Company has passed the 93.000 mark. The railroad has 3,158 more stockholders than it had a year ago.

Stockholders of the Pennsylvania Railroad residing in Pennsylvania, of whom there are 32,422, an increase of .96 per cent over last year, own 28.31 per cent of the stock of the railroad; the 15.825 stockholders in New York own 30.83 per cent of the stock. There are 16.351 stockholders in New England, 16,453 scattered in other parts of this country, and 11,951 in foreign countries. The total number of stockholders is 93.002.

There are 44.848 women who are now stockholders of the Pennsylvania Railroad, an increase of 1.529 over last year. They represent 48.22 per cent of the total number of stockholders and hold 28.09 per cent of the stock. The average holding of each woman stockholder is 63 shares.

To the Summit of Pike's Peak by Automobile.—Pike's Peak, that most widely known pinnacle of the mighty Rocky Mountains, has at last been "tamed," for on July 15, 1915, the Pike's Peak Auto Highway Co. will inaugurate a line of automobiles to the summit of Pike's Peak.

Five hours is ample time for the trip. The route from Colorado Springs will be through Garden of the Gods, Manitou, Ute Pass and the Pike National Forest; special trips will be made for sunset, sunrise and moonlight views.

The highway will be open to all gas, electric or steam self-propelled vehicles, which promises to be a great attraction for autoists.

"Safety First" was constantly in mind when the road was constructed. It is 17 miles long and 20 feet wide, the average grade being 10 per cent, or 528 feet to the mile. The highest elevation of the new highway is 14.109 feet.

At one point, one may look almost straight down over eight thousand feet below, while sixty thousand square miles of territory is visible to the naked eye—an area greater than the State of Illinois—including the plains of Kansas and the mountains in Wyoming and New Mexico.

Auto supply stations are maintained at convenient points along the way, and a certificate will be issued at the summit of Pike's Peak to those driving their own car, certifying they did so.

ORGANIZATION NOTES.

Traffic Club of Pittsburgh Elects President.—The Board of Governors of the Traffic Club of Pittsburgh at their regular meeting on July 12th, unanimously elected J. F. Townsend, traffic manager of the National Tube Company, as president. Mr. Townsend is a charter member of the organization and has always displayed an active interest in the club affairs but has never held office. The officers and Board of Governors as now constituted, comprises: President, J. F. Townsend; first vice-president, T. W. Bennett; second vice-president, Edwin C. Jepson; secretary, D. L. Wells; treasurer, Wm. F. Morris, Jr.; chairman, Board of Governors, Edwin F. Austin; Industrial Governors: G. A. Aiken, F. A. Higerd, A. R. Kennedy and Charles McNichol. Transportation: J. E. Corfield, J. C. Kimes, T. B. Moss, A. H. Orr and R. B. Merrick. The annual outing will be held Monday, August 9th, place to be named later.

Annual Meeting of American Association of Superintendents.—The twenty-eighth annual convention of the American Association of Railroad Superintendents is to be held at San Francisco on August 19 and 20. The convention will be opened with an address of welcome by Mayor James Rolph, Jr., of San Francisco, and there will be other addresses throughout the two days' sessions. Some of the speakers will be: William Sproule, president of the Southern Pacific; Hale Holden, president of the Chicago, Burlington & Quincy; W. R. Scott, vice president of the Southern Pacific, A. G. Wells, general manager of the Atchison, Topeka & Santa Fe, Coast Lines; W. E. Williams, general manager of the Missouri, Kansas & Texas, who will speak on "The Railroad, a Public Servant," and W. M. Jeffers, superintendent of the Nebraska division of the Union Pacific, who will speak on "Discipline." Reports will be presented by the executive and advisory committees and also by the committees on transportation, on interchange car inspection and on arbitration. A complimentary train, including a composite car and five sleeping cars, will be run over the Atchison, Topeka & Santa Fe and the Southern Pacific for the accommodation of members and their families, leaving Chicago on August 14 and arriving at San Francisco on August 18.

New Standing Committees for Pittsburgh Traffic Club.—President, J. F. Townsend, of the Traffic Club of Pittsburgh, has announced the following standing committees for the club's fiscal year:

Bi-Monthly Entertainment Committee.—Chairman, Glen A. Aiken, Traffic Manager, American Nut & Bolt Fastener Co.; Wm. Padden, Traffic Manager, United Engineering & Mfg. Co.; Wm. J. Herman, Traffic Manager, The Germain Company; Elvin L. McGrew, General Freight Agent, Standard Underground Cable Company; Evan R. Worcester, Traffic Manager, Macbeth Evans Glass Co.; C. E. Barnhart, Traffic Manager, Babcock Lumber Company; James M. Breen, General Agent, C. C. C. & St. L. R. R.; George N. Thomas, General Agent, Wabash Railway; J. P. Bradley, Agent, American Express Co.; Edwin H. Spence, General Agent, C. M. & St. P. Ry.; Frederick N. Hait, Commercial Agent, Lehigh Valley R. R.; Edw. H. Dederick, Pgh. Manager, Hamburg-American Line; Charles W. Henry, General Agent, Wheeling & Lake Erie R. R.

Publicity Committee.—Chairman, J. F. Constans, General Agent, Chicago, Peoria & St. Louis R. R.; F. A. Higerd, Traffic Manager, H. J. Heinz Company

Annual Meeting of B. & O. Officials at Deer Park, Md.—On June 25th, more than three hundred officials of the Baltimore and Ohio Railroad met at Deer Park, Maryland, to discuss matters pertaining to their various departments and thereby develop co-operative plans looking to a more harmonious and economic management of the property entrusted to their care. These annual meetings have become a feature of the Baltimore and Ohio management and great benefits have already been derived therefrom.

The general opinion of the officials who met at Deer Park on June 25th, appears to be that a brighter outlook is dawning for the industrial and agricultural communities in those sections of the country through which their system operates and that an era of prosperity is at hand.

A. W. Thompson, vice-president in charge of operation, presided and among others of his staff present were: Vice-President C. C. F. Bent, of the New York properties; General Manager C. W. Galloway, of Baltimore and General Manager J. M. Davis, of Cincinnati, accompanied by men of every official rank who are exchanging views concerning the various phases of railway service.

A letter from President Daniel Willard read at the opening of the Convention, viewed the betterments which have been made to the Baltimore and Ohio System during the last five years at a cost of more than $100,000,000, approximately half of which amount was spent for additional tracks and terminals, the reduction of grades and other physical economies while a like amount was expended for locomotives and cars for both passenger and freight service. Mr. Willard's letter expressed great satisfaction at the economic results which have been achieved by this expenditure of capital and he held out hope for even greater results in the future. The efforts on the part of all officers and other employes in accomplishing a very satisfactory performance of passenger and fast freight train service as well as the improved handling of all traffic were considered gratifying and an indication of ability to serve the public.

Vice-President Thompson pointed to the higher standard of service which the company is now offering as a source of pride to each man connected with the property and urged loyalty at all times within the ranks as well as a due sense of the railroad's best interests towards the end that each official should strive to promote friendly public relations. Fitting reference was also made to the spirit which should prevail of regarding the Baltimore and Ohio for Baltimore and Ohio men.

Confidence in the future of the Baltimore and Ohio was expressed by General Manager Galloway when he said that the dividend is now assured to investors with the result that the road's credit is unimpaired and at the same time its efficiency is higher than at any previous period in its history.

Discussing the service which this railroad and others offer the public, General Manager Davis said that it is of paramount importance that trains be operated with punctuality in order to please patrons and hold expense to a minimum figure. "Service in its true definition means making it easy for the public to patronize our railroad, and when irregularities occur and complaints are received, I believe it is much better to call on the complainants and hear their grievances than it is to attempt to adjust them by writing letters. The same plan should be followed when dealing with members of regulating bodies which have jurisdiction over transportation service."

How the railroad effected a saving of a large amount of money by increasing the daily mileage of cars was told by J. R. Kearney, general superintendent of transportation. The benefit of a police department of railroad service was set forth by Edmund Leigh, general superintendent of police, who showed the necessity for extending to the public when traveling and patrons shipping, every protection. Mr. Leigh, who is familiar with police methods of the principal cities of the world, said there is nothing mysterious about the duties of the Police Department, but that it is all a matter of common sense, good judgment and intelligent action with a proper amount of courage which leads to the apprehension of wrong-doers.

The importance of possessing accurate and intelligent knowledge of the railroad and communicating such information to all those in any way concerned with the operations was treated by E. E. Hamilton, supervisor of operating statistics.

The Baltimore and Ohio Glee Club of forty-five voices gave a concert of classical and popular selections at the opening of the night session. An illustrated lecture on the Magnolia Cut-off improvement was delivered by Vice-President Thompson.

F. L. Stuart, chief engineer, discussed the improvements which have been made during the past five years in the program outlined by President Willard.

At the second day session, policies pertaining to the upkeep of the railroad and matters of maintenance of equipment and tracks were the topics discussed.

Shortly after daybreak the officials were at work in their temporary offices and before the meeting was opened by Vice-President A. W. Thompson, orders had been given for operating the railroad during the day. F. H. Clark, general superintendent, M. K. Barnum, superintendent, and J. T. Carroll, assistant general superintendent of motive power, discussed the standard and repairs of locomotives and cars. The appropriation for maintenance of equipment will amount to $12,000,000 for the fiscal year closing.

By means of reclamation methods it is estimated that $500,000 will be saved annually. This will be contributed to by utilizing the lumber in cars taken out of service at an estimate of $20 a car for salvage. Four thousand cars will be dismantled during the coming year.

During the year closing 1,690,000 new ties were put in the Baltimore and Ohio tracks at a cost of seventy-five cents each, according to Earl Stimson, engineer maintenance of way, Baltimore. The price of ties in 1905 was fifty cents each. Four hundred thousand tons of stone ballast were put into the tracks last year. The efficiency of the track forces has been increased and they are receiving higher wages.

G. Lane, district engineer maintenance of way, Cincinnati, closed the discussion. Among other subjects discussed were "Public Relations of the Railroad" by George H. Campbell and "Passenger Traffic" by O. P. McCarty, head of the Passenger Department.

General Meeting of Newark Traffic Club.—The June meeting of the Newark (N. J.) Traffic Club was addressed by Mr. R. L. Calkins, freight claim agent of the New York Central Railroad, who spoke on: "Claims for Loss and Damage," in part, as follows:

"While traffic organizations, such as yours, which are composed of representatives from both industrial interests and railroads are accomplishing much through better acquaintance and interchange of thought on local business necessities, the broader field of co-operation in the direction I have briefly outlined, where so much depends upon uniformity of purpose and action, is not, it seems to me, receiving the thoughtful attention it demands from men of ability and experience who are in a position to produce practical and permanent results. The interests of the manufacturer, the merchant and the carrier are so closely interwoven that the attitude of one toward the other often determines the welfare of both. The necessity, therefore, for hearty co-operation between the maker, transporter and consumer of goods is imperative, if a fair measure of success is achieved by each.

"Whatever may have been the former attitude of some carriers toward claimants, the past fifteen years has shown marked progress in the direction of intelligent and courteous treatment of claims, consistency of policy and expeditious settlements, the three fundamentals that are most appreciated by claimants and upon which their estimation of the carrier's reputation is often judged. Ideal conditions have not, of course, been reached, but with a view of further advancement the company I have the honor to represent has permitted me to establish district claim agencies at all prominent points on our line, in order that shippers and receivers of freight may have the opportunity for personal contact with competent representatives of the department who have authority, as well as the disposition, to not only adjust claims but reconcile many differences arising between the company and its patrons where correspondence from the main office fails to accomplish satisfactory results.

"My long experience as an adjuster of all classes of freight claims has thoroughly demonstrated the fact that a very large percentage of the demands made by claimants have real merit, and are as deserving of, as careful and expeditious attention as modern business methods can provide. It is also my experience that the average claimant is quite as ready to consider the carrier's side of any questions, which appear in doubt, as we are to view theirs (except possibly in the matter of proper conditioning of freight and the ever-perplexing questions of responsibility for concealed losses) and, notwithstanding the claim adjuster usually meets the shipper at a time when he is not feeling particularly friendly toward the carrier, if he is desirous of establishing a reputation for fair and courteous dealing it is possible for him to make and retain many friends for his company and improve the standard of his branch of the service.

"The most frequent criticism of freight claim departments has always been in regard to tardiness in making settlements, and these criticisms are not only made by claimants, but by traffic representatives of the carriers who are naturally interested in making the service they have contracted to perform as satisfactory to the shipper as possible. Many claimants can not understand why claims which appear just to them should not be paid as promptly as they are required to pay their freight bills, or for the goods they ship. The reason for delayed settlements is not satisfying regardless of how valid, or how plausibly they may be presented, but as in the case of responsibilty for loss and damage to freight the real fault is not always with the carrier. Often the claimant omits to supply some important document with his claim, or information that would avoid lengthy investigations to develop essential facts that he possesses. Under present commerce regulations the carriers must establish their liability in advance of claim payment, therefore, if the validity of a claim depends upon the verification of certain facts or conditions only obtainable through correspondence with railroads located at distant points of the country, allowance should surely be made for the additional time taken for such investigations.

"The recent issue of a trades journal has this to say in reference to the presentation of claims, 'It is customary for the carriers to demand the original bill of lading and paid freight bill among other documents, but hardly could the law require a claimant to surrender his evidence to the carriers, especially as the railroads themselves have duplicates.' Such opinions, made known to the shipping public, no matter how legally sound they may be simply tend to create in the mind of the inexperienced shipper a feeling that the carrier is demanding unnecessary documents and possibly endeavoring to deprive him of the evidence upon which he can secure redress. The experienced shipper well understands that only the initial line has a duplicate of the bill of lading, also that the original often bears important notations that do not appear on the duplicate. They likewise understand that notations of shortages and damages endorsed on paid freight bills often establish the carrier's liability and thereby insure the payment of claims promptly. They understand that in the ordinary cases of overcharge in rate, bills of lading are not demanded, but that the original paid freight bill is important in determining promptly whether the overcharge has been refunded through issuance of correction. They also are aware that any document submitted in support of a claim can be obtained upon request, copies being substituted by the carrier to meet the requirements of commerce regulations.

"In the general criticism of freight claim methods and tardiness in settlements, the true conditions are usually unknown to the critic, or are disregarded for the purpose of emphasizing a particular point or strengthening an exceptional case. Many claims are unreasonably delayed and those responsible are, of course, deserving of censure, but when it is considered that of the total number of claims received by the carriers reporting to the Interstate Commerce Commission last year 52 per cent were settled within fifteen days of their presentation, 70 per cent within thirty days, and 90 per cent within the year, actual claim conditions throughout the country can be regarded as comparatively satisfactory and steadily improving.

"The subject is susceptible of endless comment and elaboration, for its phases, both from the viewpoint of the commercial public and the transportation companies are many, but sufficient has perhaps been said to illustrate my principal point, the development of closer relationship and earnest co-operation between the several interests represented in your membership, to the end that many of the avoidable causes for freight claims may be removed and each interest equally benefitted thereby."

LEGAL.

New England Roads Claim Heavy Mail Loss. Seven New England roads have filed a petition in the Courts of Claim at Washington, alleging that they have lost large sums through carrying the mails under the present system of weights and that their compensation at the present rate fixed per mile is unreasonable, unjust and confiscatory and hence unconstitutional and void. The appeal constitutes an effort to obtain from the government the sums of money which they contend they have lost in the last six years by reason of the postmaster general's alleged arbitrary mandates and the operation of the present system. The roads filing these petitions are the New York, New Haven and Hartford, the Boston and Maine, the Maine Central, the Bangor and Aroostook, the New York, Ontario and Western, the Sandy River and Rangeley Lakes, and the Bridgeton and Saco River. The sums they claim from the government are as follows:

New York, New Haven and Hartford	$4,524,713.65
Boston and Maine	3,676,823.80
Maine Central	1,839,740.00
Bangor and Aroostook	490,194.08
New York, Ontario and Western	305,000.00
Sandy River and Rangeley Lakes	30,968.31
Bridgeton and Saco River	13,425.59
Total	$10,880,865.43

This is an average annual loss of $1,813,477.57 for the last six years. The petitions filed by these New England railroads claim (1) that the annual increase of mail has not been paid for at all; (2) the carrying of the parcel post has been without adequate compensation; (3) that the deficiency created by loss of mail compensation must be made up from the freight, passenger and express receipts.

Alton's Demurrer Sustained. The State Supreme Court of Missouri has sustained the demurrer of the Chicago & Alton Railroad against the suit of Missouri to recover $2,000,000 in alleged excess fares collected while the 2c. rate and maximum freight laws were in litigation.

The decision was in affirmation of the finding of the Circuit Court of Saline county.

It is estimated that 100,000 claims were represented in the blanket suit for overcharges against 12 roads. The suit was filed by Attorney-General Barker. The aggregate of the claim is estimated at $24,000,000. The Supreme Court ruled that the Attorney-General could not sue for the whole people and that each claim represented a different issue. Therefore, they could not be drawn up under a blanket action.

Victory for Reading in the Government Coal Trust Suit. Judge McPherson in the United States District Court at Philadelphia, has filed an opinion in the Government suit against the so called anthracite coal trust, virtually finding for the alleged trust. The most important part of the decision was that portion stating that the commodities clause has not been violated by the Reading Company.

The court divides the defendants into two groups, one group headed by the Reading holding company and the other headed by the Lehigh Navigation Company.

The only connection between the two is a certain agreement made in 1871, and the court holds that this agreement does not violate the laws of the United States and therefore the Lehigh Navigation group need not be further considered, but the government is allowed to proceed against this group separately if it decides to do so.

The court takes up the canals and the Wilmington & Northern Railroad and dismissed the bill so far as they are concerned.

After considering briefly the extent of the unmined deposits, the court takes up the Reading group. The subject of unlawful combination under the anti trust act of 1890 is discussed with special reference to the mining and transportation of coal and the court holds that a miner must, in common prudence, look to the future and may therefore acquire surplus coal lands, even in large amounts.

The principal charges in that connection are thus declared not to be sustained by the proof.

The court then considers the Central Railroad of New Jersey as the owner of nearly all the capital stock of the Wilkes-Barre Coal Company, a competitor in the mining of coal.

Under the Northern Securities case and the Union Pacific case, the court holds that as the Reading Coal & Iron Company and the Wilkes-Barre Coal Company are competitors. The union of control over these two companies in the Reading holding company is objectionable. The court makes a suggestion that the object of the government will be attained if the Wilkes-Barre Coal Company should be divorced from the Central Railroad. This will be brought up when argument is heard on a form of decree to be filed.

The most important point in the decision follows:

The remaining question is under the commodities clause, and the court finds that under the facts presented in the Reading case, the question is not decided by the recent decision in the Lackawanna case, which rests entirely on the construction of a certain agreement that was there attacked. Under that agreement, the Supreme Court held that the Lackawanna railroad, which was originally the owner of the company, still retained an interest therein, and for that reason was prohibited from being the carrier, so long as the agreement was in force; whereas here, the Reading Railway never owned coal at all, or had any interest in it.

On the evidence, the Reading Railway and the coal and iron company are held to be distinct and separate corporations.

In conclusion, the court decides that the commodities clause has not been violated by the Reading Company.

TRAFFIC AND RATES.

New York State Train Record.—Ninety-three per cent of all the 67,080 passenger trains on steam railroads in the State of New York for the past month were on time according to the bulletin issued by the Public Service Commission office.

New Yorkers had to wait on an average of 19 minutes for each late train but the average delay for each train run was less one and a half minutes.

The principal cause of delay was waiting for trains on other divisions. Waiting for trains on other railroads was another source of delay and train work at stations caused one-fourth of the delays. Trains ahead of wrecks, engine failures, and meeting and passing trains were minor sources of delay.

One railroad, the New York, Westchester and Boston had a record of 99 per cent for the month in operating its trains.

Three-Cent Fare Granted Arkansas Road. The Arkansas Central Railroad has been granted permission by the State Railroad Commission to charge three cent passenger fares.

It is also reported that the State Commission will make no effort to restore the two cent passenger rate on the St. Louis and San Francisco and the Kansas City Southern railroads now charging three cents. The Commission has asked that the restraining order, which permitted the St. Louis and San Francisco to place its own tariff in effect, be modified to an extent that a court tariff would be operative. The Kansas City Southern has agreed to permit the decision to govern the disposition of its own case.

The hearing to enjoin perpetually the Arkansas Railroad Commission from putting into effect its own tariffs will be held in St. Louis in the Circuit Court of Appeals December 11.

Reduced Fruit Rates from California.— Reduced refrigeration charges on California citrus fruits and vegetables to East and Middle West markets that will save shippers over a hundred thousand dollars annually are offered by the Southern Pacific Company, to become effective as soon as the Interstate Commerce Commission gives its permission. Application has been made by the railroad company, and that the present crop may be moved, special permission is asked to waive the necessity of thirty days' notice and to make the rate effective within five days after it is approved.

On vegetables, the old rate of $7.50 per car will be cut to $2.50 and on citrus fruits the drop will be from $7.50 to $5.00. Traffic officials of the Southern Pacific estimate that 40,000 carloads will be affected.

Family Mileage Books.—Effective July 1, 1915, a new mileage book will be placed on sale at stations on the Denver & Rio Grande and Rio Grande Southern railroads in Colorado. These books, containing 1,000 coupons and costing $30, will be good for passage of the **head** of a family and the **dependent** members of his or her family, residing under the **same roof,** and will be honored as follows:

1. Between stations on the Denver & Rio Grande, Rio Grande Southern and Missouri Pacific railroads in Colorado.
2. Between stations on the Denver & Rio Grande in New Mexico west of Antonito, Colo., to and including Farmington, N. M.
3. Between stations in paragraph 1 and stations in paragraph 2.

Especial attention is called to the fact that there will be **no change** whatever in the sale or use of regular mileage book, form Local 6, which will be good **only** for individual use of **original** purchaser, between stations in Utah, Colorado and New Mexico. Agents, conductors and train auditors should make themselves thoroughly familiar with conditions under which these mileage books will be sold and honored promptly on receipt of tariffs.

Canal Traffic for May.—The number of ocean-going vessels which passed through the Canal during the month of May was 141. This is more than used the Canal during any preceding month. The previous highest number was 136, for March. Cargo passing through the Canal in May amounted to 578,708 tons, which exceeded all previous months except March. The cargo traffic during March amounted to 635,057 tons.

Cargo reached and pased the 4,000,000-ton mark in May. The total which had gone through the Canal from its opening to June 1st, was 4,347,568 tons.

During May, 75 vessels passed through the Canal eastbound, or from the Pacific to the Atlantic, and 66 westbound, or from Atlantic to Pacific. Eastbound cargo amounted to 332,174 tons, and westbound to 246,534 tons.

A summary of the traffic eastbound and westbound by months since the opening of the Canal to commercial traffic, on August 15th, 1914, is given herewith:

Month	Eastbound.		Westbound.		Total.	
	Vessels.	Cargo.	Vessels.	Cargo.	Vessels.	Cargo.
Aug. ...	12	57,182	12	49,106	24	106,288
Sept. ..	30	186,776	27	135,262	57	322,038
Oct. ...	40	252,288	44	168,069	84	420,357
Nov. ...	38	242,291	54	206,510	92	448,801
Dec. ...	57	261,680	42	177,235	99	439,915
Jan. ...	54	240,875	44	208,082	98	448,957
Feb. ...	53	274,619	39	149,987	92	424,606
Mar. ...	80	417,610	56	217,447	136	635,057
April ..	60	285,457	59	237,384	119	522,841
May ...	75	332,174	66	246,534	141	578,708
Total .	99	2,550,952	443	1,796,616	942	4,347,568

According to nationality, the vessels passing through the Canal during the month consisted of 60 American ships, 56 British, 10 Norwegian, five Swedish, four Danish, two Chilean, and one each of Italian, Canadian, Dutch, and Peruvian.

Thirteen of the vessels passing through the Canal in May were in ballast. The average loading of the 128 vessels which carried cargo was 4,961.3 tons.

In the eastbound traffic, two vessels were in ballast, and the average loading of the 73 cargo-carrying ships was 4,550.3 tons. Westbound, 11 vessels were in ballast, and the 55 laden ships averaged each 4,482.4 tons.

To June 1st, 83 vessels, not including launches and Canal craft, which are not counted in these summaries, had passed through the Canal in ballast, and 859 ships had carried cargo through the Canal.

The average daily transit of cargo through the Canal in May, was 18,668 tons, exceeding all previous months except March.

LABOR.

Full Crew Law Enforcement.—Representatives of the Brotherhood of Trainmen are soon to appear before the Public Service Commision of Pennsylvania to discuss enforcement of the full crew law. The trainmen of the western part of the State having filed complaints of violations and the commission desires a conference to hear what the Brotherhood officials have to say, to receive further complaints, and to outline a policy in respect to the enforcement of the statute.

Wages Paid to Railway Employes.—A statement of how the railroads of the country enter into the lives of millions of our citizens is made by computation just completed by the Bureau of Railway Economics. The fact is brought out that from June 30, 1905, to June 30, 1914, inclusive, $11,218,686,516 were paid for wages to an average of 1,611,105 men employed during each of the ten years.

The percentage of gross revenue absorbed by expenditures for wages increased from 40.02 in 1906 to 45.07 in 1914.

Railway Unions Amalgamated.—William G. Lee, president of the Brotherhood of Railway Trainmen, recently addressing a meeting of the local branch of the brotherhood in Denver announced that for purposes of wage and service disputes a practical amalgamation would be effected of the four largest railroad unions—those of trainmen, conductors, enginemen and firemen. He said the employes would unite in demanding an increase of wages and the eight hour day.

He explained that the proposed union of the four organizations previously had been rejected by some of them, but that they now were ready to agree to it.

CONSTRUCTION.

Clinchfield Extension Completed.—The Caroline, Clinchfield & Ohio railway extension from Dante, Va., to Elkhorn, Ky., has just been completed and will be opened for operation July 1st.

This extension is 37 miles in length and was built at a cost of $5,500,000, the heaviest construction being necessary in order to secure advantageous grades and alignment over the Blue Ridge mountains, which have heretofore proved an insurmountable traffic barrier between the Middle West and the Piedmont country in the Carolinas.

In effect the new line will furnish a direct through route between the collecting lines in the Middle West and the distributing roads in the Southeastern Atlantic states, and officials state that the haul will be shortened by between 100 and 175 miles over previously existing routes. It will reduce the time of freight trains by two days and will clip five hours from the running time of passenger trains from middle western points to southeastern points.

New York Connecting Railroad Nearing Completion.—Contracts for the construction of last sections of the New York Connecting Railroad, which are between Bowery Bay Road and the Long Island Railroad at Fresh Pond Junction, have been awarded to the Wilson & English Construction Company and to P. McManus, Inc.

This portion of the New York Connecting Line will be used for the movement of through freight traffic between the Pennsylvania and New Haven Systems.

EQUIPMENT.

An Improved Market.—The equipment situation continues to improve. Inquiries in the market from domestic railroads for between 5,000 and 10,000 cars, in addition to a number of locomotives. Inquiries for cars from Europe are expected to be closed soon. Foreign rail inquiries aggregate at least 200,000 tons. Certain foreign orders have been held up temporarily on account of difficulty in arranging payment for material to suit American producers.

The Baltimore and Ohio has placed contracts for equipment which will cost approximately $2,500,000. The orders call for 2,000 steel hopper cars and 50 cars for passenger service, and immediate delivery is stipulated in the contracts. The Chicago, Burlington and Quincy Railroad has also ordered 2,000 box cars.

Lined Steel Cars.—The Canadian Pacific Railroad has built in an annex to the Angus shops in Montreal thirty colonist, three passenger and ten baggage cars of the all-steel variety.

To provide for the needs of the Canadian climate the inside of the cars is lined with a veneer covering, a composition one-quarter of an inch thick, which has the effect of giving an agreeable temperature in either summer or winter. In addition there is a lining between the veneer and the outside of the car.

New Steel Ferry Boat for the Southern Pacific.—With the completion of the new steel ferry boat Santa Clara, the Southern Pacific Company now has twelve passenger ferries plying between San Francisco and Oakland. The trial trip of the Santa Clara was made Saturday, July 3rd, with a party of railroad officials and their guests on board.

A sister ship to the Alameda, the Santa Clara has an all-steel hull, with seven bulkheads extending to the main deck as safety features and five more extending to the main deck. It will seat 1845 passengers. Two separate engines and paddle-wheels, one on each side, enable the vessel to be turned around in its own length in case of emergency. It is 292 feet long and cost about $500,000. All of the designing was done in the offices of the Company and the construction at its shipyard at West Oakland, so that it is a California home industry product.

The Santa Clara makes the number of bay

ferry steamers now twelve, besides which the Southern Pacific has six river steamers, and four car floats, two for the bay transfer and the Contra Costa and Solano for the transfer across Carquinez straits. On the river, the railroad has six steamers.

Electric Automatic Block Signals for Southern Railway.— Southern Railway has started work on electric automatic block signals covering 77.5 miles of the Washington-Atlanta line as follows: Orange and Arrowhead, Va., 36 miles, Elma and Amherst, Va., 18.5 miles, Whittle and Danville, Va., 23 miles. All of this is for double track nearing completion except nine miles of single track between Whittle and Dry Fork.

At intervals of approximately two miles, 109 signals of the upper quadrant, three position type, will be erected. Power will be furnished from sub-stations at Charlottesville, Shipman and Danville. These signals will be so controlled that they will indicate to the engineer the presence of a train ahead, a broken rail, open switch, or any other obstruction to traffic four miles in advance of his train, thus giving him all the information necessary to control the train safely and expeditiously. The signals will be operated by a three phase alternating current of 4400 volts carried on special pole lines erected along the right-of-way. The current will also light stations and other buildings.

When these signals are completed, the protective system which they afford will cover the entire line between Washington and Charlotte, N. C., with the exception of the 20-mile stretch between Arrowhead and Elma, Va., which has not yet been double-tracked. There will also be a total of 415 miles so protected of the 649 miles between Atlanta and Washington.

PANAMA FAIR NOTES.

Southern Pacific Awarded Grand Prize.—The Jury of Awards at the Panama-Pacific International Exposition has awarded the Southern Pacific Company the grand prize for its display of equipment in the Transportation Building, thereby placing the official stamp of approval on what has been recognized as one of the most instructive exhibits of the change in and development of track, car and locomotive in the last half century.

On one of the tracks stands "C. P. No. 1"—the old C. P. Huntington—the first locomotive of the Central Pacific, itself the first transcontinental railroad. It was built in 1863, when locomotives were so few that they were called by name, and shipped around the Horn. Its total weight is 39,000 pounds.

In contrast with it is Southern Pacific Mallet locomotive 4043 on an adjacent track. It was built in 1912, one of the largest in the world. Fitted with electric incandescent nitrogen headlight, by which an engineer can see a man on the track a quarter of a mile away, or about twice the distance needed to stop a train at forty miles an hour and with cab in front, it reflects the advancement of half a century. Its total weight is 625,000 pounds.

Locomotive 1457 an "eight wheeler" is cut away in sections so that the electrically operated valves and piston can be seen as in actual operation. Steel coach 1806, built by the company in 1905, is the first of its kind in the world.

Southern Pacific automatic safety block signals, operating in a glass case, electric steel motor car, C. P. 349, a double sheathed box-car, a Pacific fruit express refrigerator car, a steel postal car and shop products make up the balance of the prize-winning display.

FOREIGN RAILWAYS.

British Railway Accidents.—The annual return issued by the Board of Trade shows that in the year ending December 31st last the number of passengers killed in train accidents on the railways of the United Kingdom was six; employes killed, eight; other persons, none. Injuries: passengers, 322; employes, 115; other persons, one. Including all causes connected with the movement of cars or engines the total number of persons killed during the year was 1,115 and of injured 7,850, as compared with 1,131 killed and 9,054 injured in the preceding year. By accidents not connected with the movement of vehicles 9 passengers, 52 employes, and 19 other persons were killed and 638 passengers, 22,153 employes, and 598 other persons were injured.

RESIGNATIONS.

Executive.

Simon Bamberger, president and general manager, Salt Lake and Ogden Ry.

A. C. Hamilton, vice-president and general counsel, Texas-Mexican Ry.

H. U. Mudge, member, western group of the Presidents' Conference Committee for the Federal Valuation of Railroads.

Financial.

A. W. Mackintosh, secretary, Mobile and Ohio Railroad.

R. H. Scribner, treasurer, Toledo Terminal Railroad.

Engineering and Mechanical.

W. T. Dobyns, engineer maintenance of way, Southern Ry.

F. N. Hibbits, superintendent of motive power, Lehigh Valley R. R.

Operation.

C. L. Harris, general superintendent, Southern District, Southern Ry.

R. W. Howard, general manager, New Orleans Great Northern R. R.

E. E. McClellan, general superintendent, San Benito and Rio Grande Valley Ry.

Traffic.

W. M. Champion, general western agent, Carolina, Clinchfield and Ohio Ry.

H. D. Dunham, traffic manager, Hocking Valley Railroad.

E. R. Eudaly, general live stock agent, Cincinnati, New Orleans and Texas Pacific Railway.

George W. Hay, general passenger agent, Lehigh Valley Railroad.

J. P. O'Donnell, traffic manager, Kansas City, Mexico and Orient Ry.

A. J. O'Reilly, general agent, Chicago, Indianapolis & Louisville Ry.

Harry J. Rhein, general passenger agent, Cleveland, Cincinnati, Chicago and St. Louis Railway.

ELECTIONS AND APPOINTMENTS.

Executive.

Julian M. Bamberger, president and general manager, Salt Lake & Ogden Railroad. Headquarters, Salt Lake City, Utah.

J. B. Bean, vice-president and treasurer, Salt Lake & Ogden Railroad. Headquarters, Salt Lake City, Utah.

M. T. Cogley, president, Texas-Mexican Ry. Headquarters, Laredo, Texas.

S. W. DeWolf, vice-president and general manager, Texas-Mexican Railway. Headquarters, Laredo, Texas.

L. J. Ferriter, personal representative of President Kearney, Wabash Railroad. Headquarters, Buffalo, N. Y.

F. W. Kirtland, assistant to vice-president, Florida East Coast Railway. Headquarters, St. Augustine, Fla.

Legal.

C. S. Burg, interstate commerce counsel, Missouri, Kansas and Texas Railway. Headquarters, St. Louis, Mo.

Financial.

H. C. Ansley, treasurer, Danville and Western Railway.

W. C. Carr, treasurer, Toledo Terminal Railroad. Headquarters, Toledo, Ohio.

E. N. Layfield, assistant secretary and editor of publications, Western Society of Engineers.

A. B. Muller, secretary-treasurer, Texas-Mexican Railway. Headquarters, Laredo, Texas.

E. J. Vail, secretary, Salt Lake and Ogden Railroad. Headquarters, Salt Lake City, Utah.

F. S. Wynn, secretary, Mobile and Ohio Railroad. Headquarters, New York.

Accounting.

Bond Anderson, auditor, Blue Ridge Railway, Danville and Western, the Augusta Southern, the Tallulah Falls and the Hartwell Railway. Headquarters, Atlanta, Ga.

John J. Ekin, general auditor, Baltimore and Ohio Railroad. Headquarters, Baltimore, Md.

Engineering and Mechanical.

Roy W. Bond, general mechanical shop inspector, Boston and Maine Railroad. Headquarters, Concord, N. H.

W. M. Bosworth, mechanical engineer, Norfolk Southern Railway. Headquarters, Berkley, Va.

G. E. Buckley, engineer, maintenance of way, Southern Railway. Headquarters, Richmond, Va.

E. B. DeVilbis, assistant engineer of motive power, Pennsylvania Lines West. Headquarters, Toledo, Ohio.

Morris Donahue, general roadmaster, Chicago and Alton Railroad. Headquarters, Bloomington, Ill.

H. E. Dyke, general foreman, Chicago, New Orleans and Texas Pacific Railway. Headquarters, Ludlow, Ky.

L. A. Hardin, assistant master mechanic, Chicago and North Western Railroad. Headquarters, South Pekin, Ill.

R. H. Howard, chief engineer maintenance of way, Wabash Railroad. Headquarters, St. Louis, Mo.

F. B. McMillan, roadmaster, Chicago and Alton Railroad. Headquarters, Bloomington, Ill.

A. H. Mahan, general locomotive foreman, Grand Trunk Pacific Railway. Headquarters, Prince George, B. C.

J. F. Moffatt, general locomotive foreman, Grand Trunk Pacific Railway. Headquarters, Wainwright, Alta.

Hans Olson, assistant roadmaster, First District, Minnesota Division, Northern Pacific Ry. Headquarters, Staples, Minn.

George M. Rice, chief engineer, Puget Sound and Willapa Harbor R. R. Headquarters, Raymond, Wash.

W. E. Stockbridge, electrical engineer, Pennsylvania Lines West. Headquarters, Fort Wayne, Ind.

H. R. Tomda, general foreman, Chicago, New Orleans and Texas Pacific Railway. Headquarters, Oakdale, Tenn.

E. F. Vincent, chief engineer, Colorado and Southern Railroad. Headquarters, Denver, Colo.

Frank E. Wilmore, assistant road foreman of engines, Pennsylvania Lines West of Pittsburgh. Headquarters, Fort Wayne, Ind.

Operation.

J. A. Baldwin, superintendent, Western and Atlantic Division, Nashville, Chattanooga and St. Louis Ry. Headquarters, Atlanta, Ga.

Roy W. Bond, general mechanical shop inspector, Boston and Maine Railroad. Headquarters, Boston, Mass.

S. E. Cotter, general manager, Wabash Railroad. Headquarters, St. Louis, Mo.

T. O. Crane, trainmaster, Southern Railway. Headquarters, Birmingham, Ala.

C. B. Davidson, trainmaster, Wabash Railroad. Headquarters, Forrest, Ill.

W. C. Downing, general superintendent, Northwest System, Pennsylvania Lines West of Pittsburgh. Headquarters, Pittsburgh, Pa.

S. Ennes, general manager, Western Maryland Railroad. Headquarters, Hagerstown, Md.

Isaac W. Geer, general superintendent, Central system, Pennsylvania Lines West of Pittsburgh. Headquarters, Toledo, Ohio.

G. W. Good, special representative, Michigan Central Railroad. Headquarters, Detroit, Mich.

Alexander Grant, general superintendent mail transportation, Southern Railway, the Virginia

& Southern and the Northern Alabama Railways. Headquarters, Washington, D. C.

B. Haggard, superintendent of terminals, Southern Railway. Headquarters, Birmingham, Ala.

Frank E. Hatch, trainmaster, Illinois Central Railroad. Headquarters, Centralia, Ill.

J. W. Jones, superintendent, Western Division, Wabash Railroad. Headquarters, Moberly, Mo.

Paul Jones, superintendent, Toledo Division, Pennsylvania Lines West of Pittsburgh. Headquarters, Toledo, Ohio.

H. R. Lake, trainmaster, Atchison, Topeka & Santa Fe Railway. Headquarters, Emporia, Kansas.

W. M. Leyendecker, superintendent, Texas-Mexican Railway. Headquarters, Laredo, Texas.

C. L. Mason, superintendent, Atchison, Topeka and Santa Fe Railway. Headquarters, Kansas City, Mo.

D. W. Nettleton, trainmaster, Gulf, Colorado and Santa Fe Ry. Headquarters, Galveston, Texas.

J. H. Nuelle, assistant general superintendent, New York, Ontario and Western Railroad.

G. B. Obey, general superintendent, Monongahela Railway. Headquarters, Brownsville, Penna.

C. E. Ocheltree, superintendent of terminals, Wabash Railroad. Headquarters, St. Louis, Mo.

J. H. Owen, superintendent of transportation, Florida East Coast Railway. Headquarters, St. Augustine, Fla.

Otto Schroll, superintendent, Western Division, Pennsylvania Lines West of Pittsburgh. Headquarters, Ft. Wayne, Ind.

G. H. Sheets, assistant superintendent, Western Maryland Railway. Headquarters, Hagerstown, Md.

J. H. Stanfiel, general superintendent, Southern District, Southern Railway. Headquarters, Birmingham, Ala.

F. J. Stimson, superintendent, Pennsylvania Lines West of Pittsburgh. Headquarters, Zanesville, Ohio.

Edward E. Taylor, division superintendent, Gulf, Colorado and Santa Fe. Headquarters, Cleburne, Texas.

H. S. Taylor, chief train despatcher, Gulf, Colorado and Santa Fe Railway. Headquarters, Temple, Texas.

H. H. Vance, superintendent, Southern Railway and the Northern Alabama. Headquarters, Birmingham, Ala.

W. M. Wardrop, superintendent, Erie and Ashtabula Division of the Pennsylvania Lines West of Pittsburgh. Headquarters, Newcastle, Pa.

James D. White, trainmaster, Illinois Central Railroad. Headquarters, Carbondale, Ill.

J. Lowell White, assistant to general superintendent of transportation, Atlantic Coast Line.

Edward T. Whiter, assistant general manager, Pennsylvania Lines West of Pittsburgh. Headquarters, Pittsburgh, Pa.

G. H. Winsor, general superintendent, San Benito and Rio Grande Valley Railroad. Headquarters, San Benito, Texas.

Traffic.

Emery W. Abbott, assistant general freight agent, Boston and Maine Railroad. Headquarters, Troy, New York.

W. F. Benning, commercial agent, Cleveland, Cincinnati, Chicago and St. Louis Railroad. Headquarters, San Francisco, Cal.

Thomas E. Bond, chief of tariff bureau, Elgin, Joliet and Eastern Railway. Headquarters, Chicago, Ill.

J. W. Bottorff, general western agent, Carolina, Clinchfield and Ohio Ry. Headquarters, Cincinnati, Ohio.

D. M. Bowman, general passenger agent, Cleveland, Cincinnati, Chicago and St. Louis Railway. Headquarters, Cincinnati, Ohio.

Charles E. Brown, commercial agent, Cleveland, Cincinnati, Chicago & St. Louis Railway. Headquarters, Los Angeles, Cal.

R. M. Burr, district passenger agent, Cincinnati, New Orleans and Texas Pacific Railroad. Headquarters, Cleveland, Ohio.

J. D. Cornell, traffic manager, Joplin and Pittsburgh Railroad. Headquarters, Kansas City, Mo.

G. W. Doll, traveling freight agent, International and Great Northern Railway. Headquarters, Pittsburgh, Pa.

George H. Eaton, assistant freight traffic manager, Boston and Maine Railroad. Headquarters, Boston, Mass.

R. A. Ebe, general livestock agent, Baltimore and Ohio Railroad. Headquarters, Pittsburgh, Pa.

C. L. Ewing, assistant general freight agent, Central Railroad of New Jersey. Headquarters, New York.

C. M. Fish, traffic manager, Texas-Mexico Railway. Headquarters, Laredo, Texas.

F. Fowler, assistant to general freight agent, Baltimore and Ohio Railroad. Headquarters, Baltimore, Md.

Thomas F. Hartnett, Pacific agent, Cleveland, Cincinnati, Chicago and St. Louis Railroad. Headquarters, San Francisco, Cal.

E. S. Hines, traveling freight agent, Carolina, Clinchfield and Ohio Railway. Headquarters, Cincinnati, Ohio.

F. B. Humston, division freight agent, Chicago, Indianapolis and Louisville Railroad. Headquarters, Indianapolis, Ind.

W. A. Kellond, general baggage agent, Missouri, Kansas and Texas Railroad. Headquarters, Parsons, Kansas.

J. X. Kimberger, commercial agent, Cleveland, Cincinnati, Chicago & St. Louis Railway. Headquarters, Seattle, Wash.

William T. Lamoure, general freight agent, Boston and Maine Railroad. Headquarters, Boston, Mass.

George H. Lee, general passenger agent, Lehigh Valley Railroad. Headquarters, New York.

H. G. Leutert, traffic manager, Kansas City, Mexico and Orient Railway. Headquarters, San Angelo, Texas.

V. W. Lewis, general live stock agent, Cincinnati, New Orleans and Texas Pacific Railway and the Alabama Great Southern R. R. Headquarters, Chattanooga, Tenn.

A. J. McDonald, commercial agent, Carolina, Clinchfield and Ohio Ry. Headquarters, Chicago, Ill.

H. H. Marsh, division freight agent, Baltimore and Ohio Railroad. Headquarters, Parkersburg, W. Va.

Frank V. Martin, district passenger agent, Chicago, Indianapolis and Louisville Railroad. Headquarters, Indianapolis, Ind.

A. C. Mathias, northern passenger agent, Cincinnati, New Orleans and Texas Pacific Railroad. Headquarters, Chicago, Ill.

George Merki, chief inspector, joint rate inspection bureau and weighing and inspection bureau, Central Freight Association. Headquarters, Chicago, Ill.

J. C. Murray, general freight and passenger agent, Missouri and North Arkansas Railway. Headquarters, Harrison, Ark.

W. A. Nelson, traveling agent, Bangor and Aroostook Railroad. Headquarters, Bangor, Me.

W. J. O'Toole, assistant to general livestock agent, Baltimore and Ohio Railroad. Headquarters, Pittsburgh, Pa.

J. J. Owen, superintendent of transportation, Florida East Coast Railway. Headquarters, St. Augustine, Fla.

Arthur S. Piers, manager real estate department, Canadian Pacific Railway. Headquarters, Montreal, Que.

Lewis Snodgrass, special agent, Delaware and Hudson Company. Headquarters, Albany, N. Y.

J. B. Stewart, general agent, Delaware and Hudson Company. Headquarters, St. Louis, Mo.

J. C. Volz, central passenger agent, Cincinnati, New Orleans and Texas Pacific Railroad. Headquarters, Cincinnati, Ohio.

G. S. Ward, chief special agent, Wabash Railroad. Headquarters, St. Louis, Mo.

F. W. Whipper, assistant general passenger agent, Cleveland, Cincinnati and St. Louis Railroad. Headquarters, Cincinnati, Ohio.

OBITUARY.

William L. Breyfogle, formerly president of the Louisville, New Albany & Chicago, now the Chicago, Indianapolis & Louisville, and later president of the Bedford Belt Railway, died at Hillsborough, a suburb of San Francisco, Cal., on June 17th, at the age of 68 years.

Frank H. Chamberlain, claims adjuster for the Atchison, Topeka & Santa Fe, with headquarters at Guthrie, Okla., died at Battle Creek, Mich., on June 21st.

J. E. Gimperling, Sr., formerly superintendent of the Cincinnati, Dayton & Ironton and the Cincinnati, Dayton & Chicago, died at Dayton, Ohio, on June 14th at the age of 84 years.

James J. Goodwin, a director of the Erie, died on June 23rd, at Hartford, Conn., at the age of eighty.

Charles L. Haydock, assistant engineer of the Missouri Pacific, at St. Louis, Mo., was drowned recently at Leavenworth Junction, Kan., while superintending the making of willow mattresses to prevent the river from undermining the tracks. He was 31 years old.

Charles Hayward, former purchasing agent of the Chicago & North Western, died in Chicago, on June 13th, at the age of 77 years. Mr. Hayward was born on October 15, 1837, entered railway service in 1879 with the Chicago & North Western, and was purchasing agent for many years.

William N. Hughes, formerly consulting engineer of the New York, Chicago & St. Louis Railroad, and at one time bridge engineer of the city of Chicago, died at his home in Chicago, on June 25th.

R. H. Lacey, southern passenger agent at Nashville, Tenn., of the Pennsylvania Company and Pennsylvania Lines West of Pittsburgh, died June 30th at Nashville, at the age of 64 years.

Oliver Snyder, division superintendent of the Gulf, Colorado & Santa Fe, at Cleburne, Texas, died on June 6th, in that city at the age of 45 years.

Samuel Thorne, a director of the Great Northern, the Colorado & Southern and other Hill roads, died on July 5th, of heart disease, on board the yacht of James J. Hill, of the Great Northern, on the St. John's River, Quebec, Canada.

Ben Wilson, general live stock agent of the Baltimore and Ohio Railroad, with office at Baltimore, Md., died June 17th, at the Planters' Hotel, St. Louis, Mo., at the age of 63 years.

The Westinghouse Relief and Compensation Service Pension.

THE Westinghouse Electric and Manufacturing Company has just issued a preliminary statement of its sickness and accident relief, accident compensation and service pensions on which its officers have been working for over a year.

The plan includes three separate and distinct features:

First. Extension of the present Relief Department.

Second. An accident and compensation plan.

Third. Service pensions.

RELIEF DEPARTMENT.

The privileges of the Relief Department are open to every employe, male or female, regardless of age, position or location, upon payment of a small monthly due.

The company pays the entire expense connected with the operation and maintenance of this department, the dues being reserved wholly for the payment of benefits (proportioned to wages) for sickness and accident arising from causes other than employment. In the event of death the amount paid from the dues will be duplicated by the company which will also meet any deficit that may arise.

Benefits will continue as long as disability lasts, or until the age of 70 is reached, when pensions will be granted.

ACCIDENT COMPENSATION PLAN.

The Accident Compensation Fund is maintained entirely by the company for the benefit of all employes, male or female, whether they belong to the Relief Department or not. This plan covers the payment for disability due to accident, or for death resulting from accident, while at work as an employe, and makes provision for both total and partial disability. In case of total disability the company will pay as long as the disability lasts, even for life, two-thirds of the average wages received, and for partial disability, two-thirds of the reduction in the earning capacity of the employe, even though the employe should eventually leave the service of the company. In case of death the company will immediately pay the dependents, or next of kin, $150, as explained under the provisions of the plan as a pension to the widow or dependent husband or children under 16 years of age.

Medical, surgical and hospital expenses under the direction of the company's medical officers will be paid during disability from such accidents.

SERVICE PENSIONS.

Employes of the company shall be retired at the age of 70 years, and those who at the time of such retirement are members of the Relief Department, and have completed at least 20 years of continuous service are to be granted a pension amounting to 1 per cent of the average monthly wages during the last 10 years of employment for every year of continuous service, with a minimum of $20 per month and a maximum of $100 per month.

Upon the death of the pensioner, one half of the pension will be paid to the widow until remarriage, providing marriage occurred at least 10 years before the granting of the pension. For the support of each child under 16 years of age, and for each wholly dependent grandchild under 16 years of age, one fourth of the pension will be paid until they reach the age of 16 years.

The president may, at his discretion, retire any employe between the ages of 60 and 70 years who has been in the service the required time, and he may increase any pension for specially meritorious service, by 25 per cent, but not beyond the maxi-

In those states already having workmen's compensation laws, as in the case of New Jersey and Ohio, where the company also maintains plants, such laws may be substituted in whole or in part. Where the provisions of the Westinghouse plan are more liberal these will generally prevail.

Exhibit of the Denver and Rio Grande.—No matter through which door one enters the Palace of Transportation at the Panama Pacific International Exposition, San Francisco, the eye is almost instantly arrested by the looming proportions of what is declared to be one of the most novel and interesting exhibits ever seen. The earth itself is on display. The exposed surface is covered by the continent of North America and the oceans that bound it. The United States, with its mountains, rivers, valleys, national parks and cities, is taken in at a glance. In fact, the eye travels with tiny trains which flit across the huge miniature exactly as the trains they represent are in flight across the continent.

The exhibit is the production of the transcontinental system embracing the Western Pacific, the Denver & Rio Grande, the Missouri Pacific and the Iron Mountain. It stands in the northwestern corner of the Palace of Transportation, and becomes of even greater interest as one approaches. About it on every hand are the finest examples of the locomotive builder and the car constructor and these pieces of railroad "furniture" give added point to the unique exhibit which illustrates a great railroad's function in serving mankind.

"The Globe" is fifty-two feet in diameter; being cut off at the base, is forty-four feet in height. The trains are seen traveling from San Francisco over the tracks successively of the Western Pacific, Denver & Rio Grande and Missouri Pacific to St. Louis, whence the Iron Mountain radiates to points in the southern states and particularly to Hot Springs, Arkansas. Cities and places of interest are labelled with their names and a light glows at each as the train passes. Yellowstone, Mesa Verde, Rocky Mountain and Yosemite National Parks and Great Salt Lake are indicated by squares of soft light.

Although a train crosses from San Francisco to St. Louis in three minutes, it is impossible to regard this globe and the suggested activity upon its suface without feeling as never before the splendid achievement of transcontinental railroading and the part it plays in our national life.

"The Globe," which is even more interesting within than without, is entered through ornamental arches. The pilasters, are surmounted by strikingly sculptured figures of a prospector, representing mining; a fisherman, representing sports; a farmer, representing agriculture; a blacksmith, representing commerce; and a brakeman, representing transportation. Locomotives in relief appear to be emerging from the pilasters as from tunnels and their smoke drapes above the arches to spell the names of the four lines. Car wheels form a border for the arch entrances. In the width of the arch is seen a fragment of ballasted track. The keystone displays a bell, beneath which are the words:—"Scenic Line of the World."

Adjoining the globe and forming part of the roof of the interior exhibit is a reproduction of Marshall Pass in Colorado, the highest point reached by the Denver and Rio Grande. This pass, with an altitude of 10,857 feet, is the continental divide from which streams flow west and east to the Pacific and Atlantic Oceans. In the colorful reproduction, Mt. Ouray rises solemnly in the background. The trees and rocks of the foreground being real, the spectator is assisted in getting the "feel" of the "Backbone of the United States." Below Marshall Pass are bas relief panels showing Ruby Canon and scenes on the Feather and Missouri Rivers.

The interior of this huge globe is so interesting that were the exhibit on the Joy Zone and an admission fee exacted, the never-ending stream of visitors would as eagerly pass through its entrance arches. Within the globe is shown in miniature three million billion feet of the finest scenery in the world. In passing along a winding fairy causeway one looks first to right and then to left upon the vistas of a partly modeled, partly painted diarama that pictures the scenery and the activities lying along the lines of this railroad system. The effect of viewing these superbly wrought miniatures is difficult to describe. Not only do they acquaint the visitor with what is to be seen on this route, but they make him prouder of being an American.

Moving from scene to scene is identical with crossing the continent from West to East. The Panama Pacific International Exposition is shown just as one would observe it from a hilltop a mile away. The succeeding scenes are given in the order in which they occur: San Francisco; Sacramento, the capital of California; Feather River Canon, which has made the Western Pacific famous throughout the world; Salt Lake City; Provo Valley and Utah Lake; Grand Junction, Colorado with an orchard in Grand River Valley; Glenwood Springs, the noted resort; Leadville, with its mines and smelters and Mt. Massive in the distance; Royal Gorge, which has made the name of the Denver & Rio Grande known everywhere that men love to speak of the mighty and beautiful in Nature; the Sky Line Drive, showing Canon City and the Upper Arkansas River Valley, where agriculture alternates with oil wells and gold and coal mines; Pueblo, with the Bessemer Steel Works; the Garden of the Gods, with Pikes Peak in the distance; Denver, the mile-high metropolis of the mountain kingdom; the Pikes Peak region from the Crystal Park auto drive at Artist's Point, from which the eye takes in seventy miles of territory including Colorado Springs, Colorado City, Manitou and the Garden of the Gods; San Luis Valley in Colorado, showing a 2000-acre alfalfa field; Sugar City, Kansas, with its beet sugar industry; the cliff dwellings of Mesa Verde National Park, in southwestern Colorado; Osawotamie, Kansas, with a 300-acre farm and stock ranch; Kansas City, Missouri, with its new Union Station; Jefferson City, Missouri, with its new Capitol Building; St. Louis, the eastern terminal of the Missouri Pacific; Hot Springs, Arkansas, the famous watering place connected with St. Louis by the Iron Mountain Line.

These scenes are faithful reproductions. They are full of color. They are made instinct with life by the changing play of lights and shadows. There are sunrises, sunsets, night and storm effects. The growing and receding light makes one feel the might and majesty of the mountains.

When the visitor has reached the center of the earth, as it were, he finds himself standing before a softly plashing fountain. The light fades. Twilight is succeeded by darkness. Then the twinkling stars come out. Finally the honey-colored moon sends a glow into the chamber. The soft firmament, with its marvelous heavenly bodies may be only a few yards away, but the illusion is perfect. It is exactly as though one stood in a garden on a matchless summer night.

The visitor is recalled to the actualities by a courteous attendant, who hands him printed matter in which the facts about the country he has been viewing are succinctly set forth. The globe was designed and built by F. B. Fulton of Denver, who directed the construction of the interior scenes from paintings made by himself.

BOOK REVIEWS.

The Act to Regulate Commerce as Construed by the United States Supreme Court.—By Herbert Bruce Fuller, A.M., Ll.M., of Cleveland, Ohio, Bar. Six hundred pages, buckram binding, price $6.00 delivered. Published by John Byrne and Company, Washington, D. C.

This work is intended to collate the decisions of the United States Supreme Court on the Interstate Commerce Act and to include within a single volume a thorough discussion of them. It constitutes the law of that Act as judicially construed by the court of last resort. The law is clearly and concisely stated and the footnotes contain complete citations together with the supporting text of the decisions of the Supreme Court. Many of the most important decisions construing the Interstate Commerce Act have been rendered by the court since the publication of any treaties on this subject. For instance, the Minnesota Rate Cases, the Shreveport Case, the Inter Mountain Rate Cases, the Tap Line Cases, the Louisville and Nashville Correspondence Case, and many others. These are all contained in this work and are exhaustively discussed and their text is largely quoted in the footnotes. The volume contains all the amendments to the Act to Regulate Commerce including that of March 4, 1915, to the Carmack Amendment regulating the liability of carriers for shipments lost or injured, and all of the decisions of the Supreme Court on this important branch of the law to April 1st, 1915.

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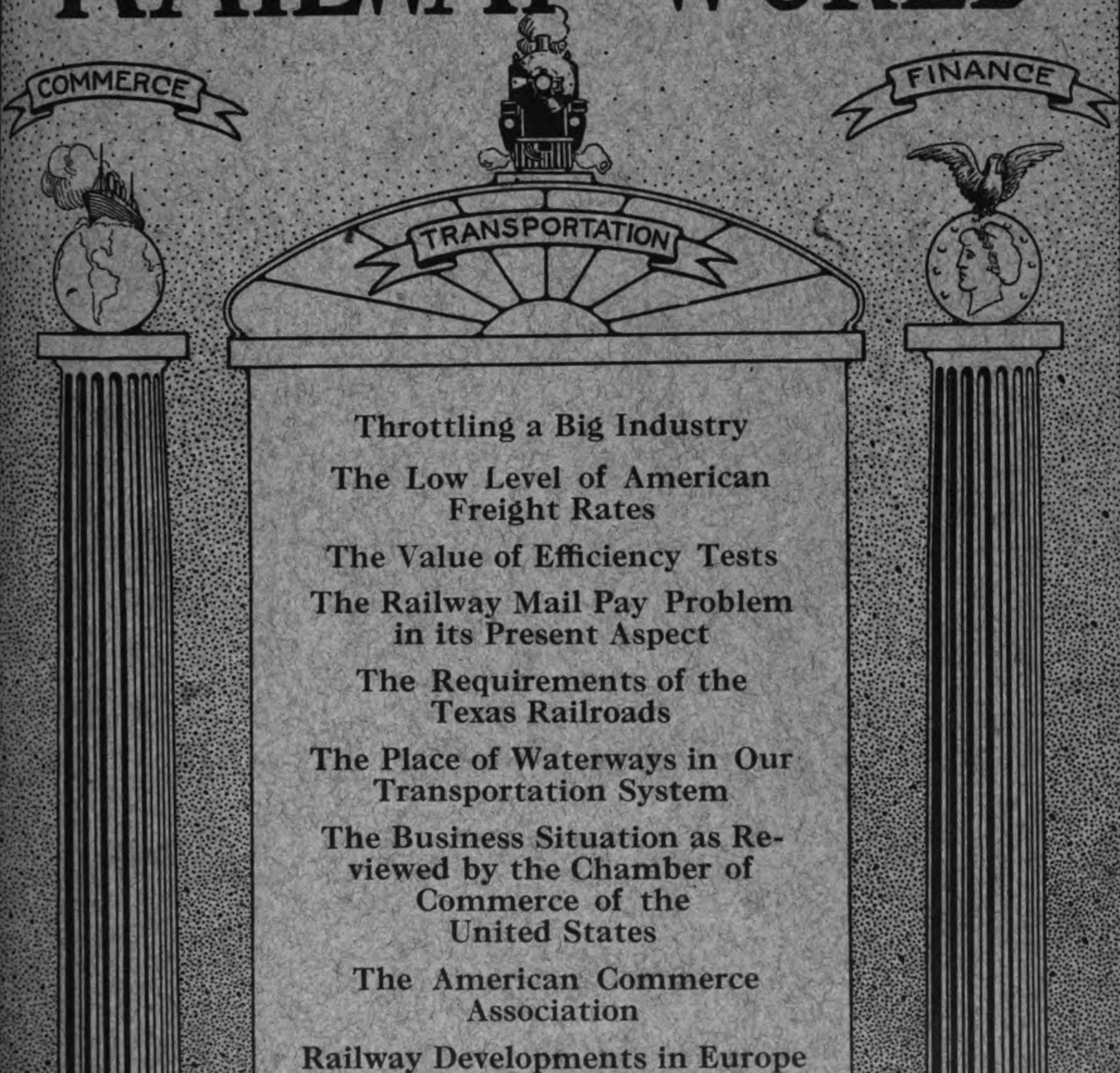

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(b) Those who maintain, repair and test the air brake. Air brake foremen, repairmen, test rack operators, inspectors, etc. This class is small compared with trainmen and is primarily interested in the structural features and detailed operation of the individual devices.

(c) Those who lay out and make the installation. Mechanical engineers, chief draftsmen, car designers, car and locomotive builders, railroad inspectors, etc. These men are concerned most with matters of braking power, leverage, distribution of apparatus on the car or locomotive in relation to other devices, and similar work.

(d) Those in authority who supervise and instruct. Supervisors of air brakes, air brake instructors, road foremen of engines, etc. These officials should have a comprehensive knowledge of both the practical manipulation and the mechanical operation of the air brake system, its individual parts, and the principles upon which this operation is based.

(e) Those in executive capacity who are responsible for the most efficient and profitable management of the road. These officials, including boards of directors, should have a broad appreciation of the possibilities and performance of the air brake, and are vitally interested in the use of the best type of brake for a given service, establishing common standards, and encouraging every phase of air brake education.

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VOLUME LIX ESTABLISHED 1856 NUMBER 8

A MONTHLY JOURNAL (successor to Railway World, a weekly publication) designed to present an accurate and comprehensive review of current events pertaining to Transportation, Commerce and Finance and to afford a medium for the development of a clearer understanding of the mutuality of interest which exists between those who employ and those who operate the railways.

Publication Office: 612 Chestnut Street, Philadelphia, Pa.

Terms: $3.00 per Annum in Advance
Foreign Subscriptions: $3.50 per Annum in Advance
Single Copies: 25 Cents
Advertising Rates furnished upon application

ENTERED AT THE POST OFFICE AT PHILADELPHIA AS MAIL MATTER OF THE SECOND CLASS

EDWARD G. WARD . . . . PRESIDENT AND EDITOR.
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DIVIDEND NOTICE.

Philadelphia Electric Company, 419 Market street, Camden, N. J., Aug. 12, 1915. The Board of Directors have this day declared a quarterly dividend of one and three-quarters (1¾) per cent. (being 39.375 cents a share) upon the paid in capital of the Company payable Sept. 15, 1915, to stockholders of record Aug. 20, 1915.

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Railway World

VOL. LIX. AUGUST, 1915 No. 8

Important Developments in the Transportation Field

THE OUTLOOK

While there are considerable indications of better business conditions, the improvement has not been nearly so great as anticipated and recent decisions of the Interstate Commerce Commission have tended to cast a still deeper gloom over the whole railway situation. While large war orders have greatly stimulated certain industrials and have brought about a positive revival in the steel trade, there is no evidence of any improvement in the gross revenue returns of our railroads, which, for the first six months of the current calendar year, show a heavy loss, which is still further emphasized by unfavorable gross returns for the month of July. While net results are of a much more favorable character, they have only been accomplished through the most drastic economies which have greatly reduced the purchasing power of the carriers to the detriment of the entire industrial field.

One of the most remarkable circumstances of the whole situation, is that business appears to stand more in dread of undue interference on the part of the present Administration than of any influence of the great war which is now being waged in Europe. No more striking illustration than this can be offered of the deep feeling of unrest and distrust which has been engendered by the present Administration's sweeping efforts to reform business. With the greatest opportunity of a century knocking at its door, the Nation is apparently still hesitating to take the plunge, not because of its fundamental inability to "produce the goods," but because of the socialistic and paternalistic tendencies of the present Administration which have added a risk to all business ventures on a large scale to the extent of placing a grave handicap both upon progress and enterprise.

It is to be fervently hoped that this country may soon emerge from the twilight zone through which it has recently been making so painful and laborious a journey, into the clear sunlight of a better understanding of what are the legitimate rights and privileges of the business community.

The whole world recognizes America's great opportunity at the present time, and were not the political aspects so disquieting, the country would even now be feeling its stimulation from ocean to ocean. It is to be hoped that the Administration will yet perceive the wisdom of removing all unnecessary shackles from business, and that the opportunities which have come to us may be embraced to their fullest extent. How great these opportunities appear to the rest of the world is interestingly set forth in an editorial recently appearing in the London *Statist* which is herewith appended:

> The signs of trade expansion in the United States are now unmistakable, and, barring accidents, the country is likely to enjoy renewed prosperity. In the past year fundamental conditions made for trade activity; crops were good, prices were profitable, and there was a great foreign demand, not merely for foodstuffs, but for many kinds of manufactured goods. The only really serious drawbacks were, first, the lack of confidence from which the country suffered, and, second, the low price of cotton, which greatly reduced the income of everyone in the South. As the year has passed the beneficial effect of the profitable prices of agricultural produce, and the great demand for goods for export to the belligerent countries has increased, and now, at the beginning of the new crop season, all the conditions are favorable to good trade. First and foremost, confidence has been restored, and people are investing their money with much greater freedom than at any time since the war. Second, the new crops are abundant, and prices are profitable, and, third, the orders for manufactured goods for export are quite unprecedented. Hence it is evident that, barring accidents, trade in the United States in the coming year will be very active. In taknig this view it is essential, however, to make one or two reservations. The United States have great crops and great manufacturing capacity, and as far as production is concerned the trade of the country should be exceedingly active. For trade to be really active, however, one thing is essential. A great production must be attended by great consumption. It is not much good producing great quantities of things if no one has the means of buying them. Long experience taught this elementary principle to the British people with great force, with the result that any one who needed to buy British goods rarely failed to purchase them for lack of means. If other countries had no goods to sell in exchange for British goods, the British people were invariably willing to take payment in securities for the goods they sold. As

yet the American people have not had much experience of what is needed to build up a great export trade, and one cannot be quite sure that they are yet aware that if they are to sell all the goods they wish to, and are able to, sell in a time like this they must be willing to take payment for a large part of them in securities. American bankers and investors are making substantial progress in the science of international finance, having since the war began invested abroad in foreign securities of various kinds a sum of about $300,000,000. This is over and above the repurchase of about $300,000,000 of their own securities from foreign countries. As far as they have gone they have been disposed to lend their money mainly for short periods, as this method appeals to their bankers, aware of the advantages of taking payment in securities for goods sold. Having started the operation of lending money to the world for short periods it is probable that the American people may now realize their strength, and will invest money abroad on a still greater scale, and thus build up their foreign trade to a much bigger figure than it has yet reached. Indeed, if the American people were to lend abroad all the money they can profitably and safely employ we should be unable to place any limit either on the export or the home trade of the United States in the next twelve months. On the other hand, if the American people remain relatively local and are indisposed to create a great international market in the United States for both bankers' and investors' money, then it is obvious that other nations will not be able to purchase any large quantity of American goods and American trade will remain more or less depressed. The only doubt in our mind as to the extent of American trade and prosperity in the coming year is just in this question, "Will the American people rise to their opportunity and lend freely to the world?" As we do not know how much money America will be prepared to lend to the world, we do not know how many goods other countries will be able to buy from the United States.

In the six months to the end of June the exports of the United States have shown the great increase of over $600,000,000, while the imports have been substantially reduced, and the net excess of exports over imports has been some $835,000,000, in comparison with a very small excess in the corresponding period of last year. Including silver, the excess of exports for the six months was as much as $846,000,000. The full statement of the gold movements is not yet to hand. Apparently the country has imported about $120,000,000 in gold. Further, it has probably had to remit abroad during the half-year a sum of about $200,000,000 for interest, freights, etc. This amount has been unusually small, as there are very few American tourists abroad at the present time, and the sums remitted from people in the United States to friends in Europe have been reduced. We calculate that in a normal year the country needs about $700,000,000 to finance its foreign payments for interest, tourists, gifts to friends, etc., but that in the current year, with practically no tourists, with American gifts to foreign friends reduced rather than increased, notwithstanding the great liberality of the American people to Belgium, and with very little passenger travel, the foreign payments of the States for the purposes may not be much over $400,000,000. After deducting gold imports and the sum remitted for interest, etc., the balance remaining to the credit of the States in respect of the past six months has been about $500,000,000. Of this total nearly $200,000,000 in the half year was placed in foreign securities of one kind and another, and the balance of over $300,000,000 has been left abroad for employment, or has been taken home in the form of American securities repurchased from other countries. We set out below a comparison of the foreign trade of the United States for the six months to the end of June:

Excess of Exports over Imports—Six Months to June 30, 1915.

	Six Months to June		
	1915	1914	
Imports	$865,861,000	$980,915,000	—$115,054.000
Exports	1,701,413,000	1,046,843,000	+ 654,570,000
Excess of Exports	$835,552,000	$65,928,000	+$769.624.000

To show the purposes for which the excess of $835,000,000 of exports over imports has been used, we give the following statement:

Excess of Exports over Imports—Six Months to June 30, 1915.

Merchandise, exp.	$835,553,000
Silver, exp.	11,000,000
Total	$846,000,000
Gold, net imports, est.	120,000,000
Interest, etc.	200,000,000
Total	320,000,000
Public subscriptions to foreign securities in New York	188,000,000
Total	508,000,000
American capital privately placed in Europe in one way or another and by purchase of securities, etc.	338,000,000
	=£70,000.000

As to the capacity of the United States to export in the coming six and twelve months no doubt whatever can exist. The crops now being gathered are abundant, and should leave a very large quantity for export. The estimated total yield of wheat is no less than 963,000,000 bushels, and of this total at least 300,000,000 bushels should be available for shipment. The maize crop, according to present conditions, promises to be over the average of recent years and substantially greater than last year. The last Government crop estimate was for 2,814,000,000 bushels in comparison with 2,673,000,000 bushels last year. The oat crop is placed at 1,288,000,000 bushels, against 1,141,000,000 bushels last year, while the condition of the hay crop was substantially above the average. With profitable prices for food these crops should yield to the country and to farmers a great income. The cotton crop also promises to be abundant. Nothing need, of course, be said about the manufacturing capacity of the United States. During the past year it has not been fully employed. It is obvious that if markets can be obtained for American goods the production of them can be very greatly increased. The statement of the United States Steel Corporation shows that the demand for iron and steel is now expanding. At the end of June last year the orders in hand were for only 4,000,000 tons, while in November last they fell to about 3,300,000 tons, and they have now increased to 4,678,000 tons. In November the Corporation was operating at less than 40 per cent of its capacity, whereas now it is operating about 90 per cent of its plant.

Should the American people provide their customers with the means of buying their goods to the extent they wish to purchase, then obviously American trade in the coming year, both home and foreign, will show vast expansion. If Europe continues to buy goods as freely as existing orders indicate, we calculate that in the six months to the end of December the value of the export trade will be quite unprecedented and not improbably the excess of exports over imports will reach $1,000,000,000 in half a year. Of course, should our expectations of America's enterprising spirit and of her willingness to invest abroad not be realized, her export trade would not expand to the extent we anticipate. Indeed, the economies that would be forced upon the civilian populations of Europe would not only reduce the demand for American goods, but would lower the prices of the produce America succeeded in selling. The action of American bankers and others last week in purchasing $40,000,000 of Canadian Government bonds and notes seems to indicate, however, that the United States will lend money freely. The syndicate that negotiated the Canadian notes was headed by Messrs. Morgan and Company and by Messrs. Brown Brothers. In brief, we anticipate that if America lends money freely to other countries it will enjoy a period of great trade activity in the coming twelve months in the value of its export trade, which in the past 12 months has risen to $2,768,000,000, may in the next 12 months increase to something like $4,000,000,000.

With regard to the trade of the past twelve months, account has to be taken of the necessity of the United States to meet its last year's tourist and other expenses out of its exports of the year. The aggregate trade of the twelve months to June 30, the amount of the trade balance, and the manner it has been settled are shown by the following:

FOREIGN TRADE OF UNITED STATES—YEAR TO JUNE 30.

Year to June 30.

	1915	1914	Inc. or Dec.
Imports	$1,674,221,000	$1,893,925,000	—$219,704,000
Exports	2,768,194,000	2,364,579,000	+ 403,615,000
Excess of Exports	$1,093,973,000	$470,654,000	+$623,319,000

The manner in which this excess of $1,094,000,000 of exports over imports has been employed is shown by the following statement:

TRADE BALANCE U. S.—TWELVE MONTHS TO JUNE 1915.

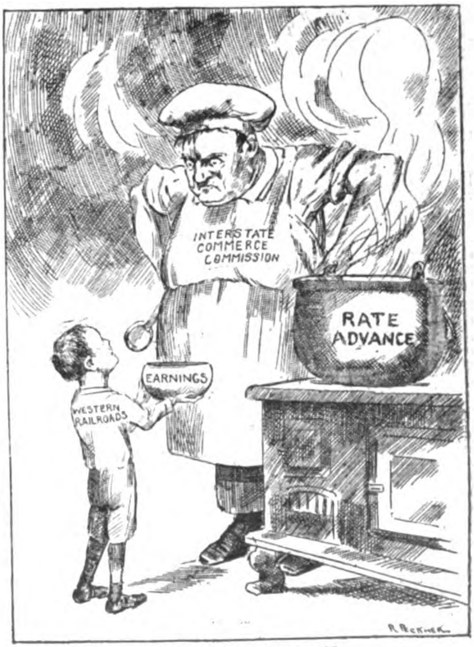
Excess of merchandise exports	$1,094,000,000
Net exports of silver, June estimated	24,000,000
Net imports of gold, June estimated	10,000,000
Total net exports	$1,108,000,000
Interest, tourists, freights, etc.	500,000,000
Balance	$608,000,000
Public loans to other countries	244,000,000
Balance	$364,000,000*

* = to about £75,000,000 settled by banker's loans to other countries and repurchases of American securities from Europe.

Thus, in the past twelve months the United States has bought back its securities from other lands and invested capital abroad to the extent of about £125,000,000. In the current year to June, 1915, we shall be disappointed if America does not place abroad some £300,000,000 of capital, either in loans to other lands or in the repurchase of her securities.

THROTTLING A BIG INDUSTRY

No more unfortunate decision has ever been rendered by the Interstate Commerce Commission than that in connection with the Western rate advance case in which the petition of the Western carriers to increase certain freight rates by a very small percentage, was largely denied. Just at the time when the railroads had hoped that they were at last getting out of the woods, the Commission has rendered a decision so obviously unfair as to throw the whole rail situation again into a state of the greatest



A MODERN OLIVER TWIST.

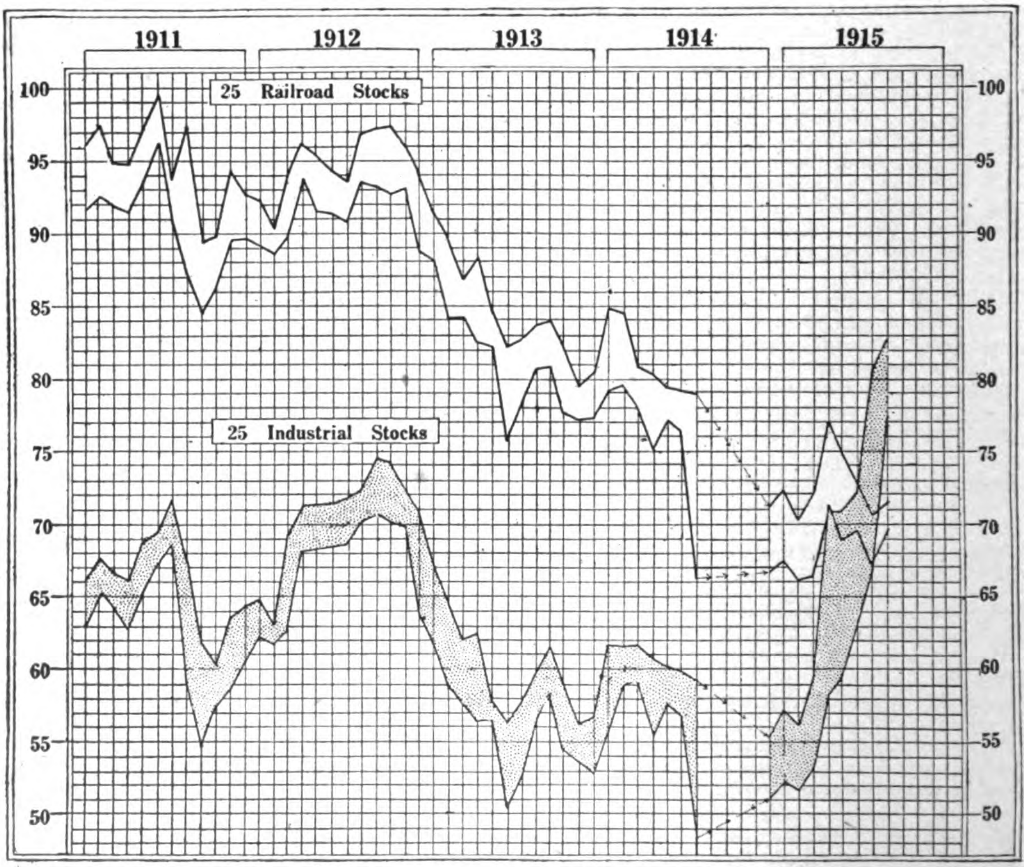
—from *Financial America.*

uncertainty. As if this was not bad enough, the Commission has also rendered a decision in the long-drawn out anthracite rate case, by which the coal carriers are deprived of an annual income of approximately $8,000,000, which goes a long way to offset any possible benefits which were anticipated from the Commission's decision in the Eastern five per cent advance rate case. Meanwhile the gross revenues of the railroads have been showing most disquieting results and their stocks, which for many years held a leading position in the markets of the world, are beginning to drag considerably behind leading industrial issues. The accompanying diagram taken from the New York *Annalist,* is of particular significance in this connection.

The Commission's decision in the Western rate advance case has suited no one. Not only has it failed to relieve the carriers, but it has been severely criticised by prominent men in all departments of business as placing a heavy handicap upon the return of more generally prosperous conditions. To quote from the *Commercial and Financial Chronicle*:

> The action of the Interstate Commerce Commission in the latest rate case may not be quite the tender of a stone in response to a cry for bread, but it grudgingly yields a fragment instead of the loaf; it is also worse because the roads had not asked a blanket increase, but one upon certain products (chiefly food products), and if there is prosperity anywhere in this country at present it is with the farmers. Further, while nobody desires increase of burdens for the increase's sake, the question is the unavoidable one of fairly distributing burdens which cannot be mitigated now, and although the law that the consumer pays all expenses is naturally irrepealable, the consumer could not have been reached by the advances sought. For the packers themselves argued at the hearings that the smallest increase they could make would be one eighth of a cent, and the

Shifting a Market Crown



Industrials Take Erstwhile Place of Railroad Stocks freight increase asked would be less than one fourth of that eighth.

At the outset the majority report of the Commission takes false grounds in citing possible findings of an impossible "valuation" which is scarcely begun. As this work is not sufficiently advanced to furnish any "definite knowledge of the true value of properties involved in this proceeding," they have to go on without "authoritative valuations of the carriers' property." Here we must interpose (without stopping to argue or enlarge) the demurrer that such real valuations, however, "authoritative" they may be considered, cannot possibly be obtained, and that they would have no relation to the rate problem if they were at hand. Then, after deploring this lack of definite knowledge, the report cites the proof of increased operating cost in 1910-14, but affirms that still these 41 roads "are earning a fair rate on a reasonable valuation of their properties as a general rule"; by assuming three average valuations per mile, ratios of return from 4 to 8.4 per cent are deduced. The Commission admits that it has no valuation figures yet; then discounts the valuation itself by guessing at an average; then offers this guess as a quasi evidence that the roads are doing very well; then (further along in the report) repeats the remark that there are no sufficient data about the value of the properties. But, without seeming to perceive any incongruity, the majority remark that the carriers share with other industries the necessity for paying advanced interest rates as well as higher prices for materials and labor, but also that "these carriers in meeting increased costs with increased prices for service are subject to certain disabilities not similarly encountered in many other industries," and also they note "a growing disinclination to accept the prospect of dividends as a sufficient incentive to assume the risk of railroad proprietorship." Evidently the writer of the majority report was unable to keep an equal mind throughout the whole composition.

Have we not here, once more, the non possumus plea which has become familiar in the miscalled arbitration hearings upon the demands of the railway employes for their periodic wage increases? The virtual declaration that the judges are unable or naturally incompetent to intelligently pass upon one side of the case, and therefore unhesitatingly grant the contention of the other side? Suppose it is fully true "that the credit of these carriers as a whole has not suffered an impairment not common to comparable industrial enterprises," is that a sound reason for not restoring their credit when it is possible to do so, and is not the offering of the non possumus plea as to finding an absolute and just method of determining their needs a reason for not assuming to guess where one cannot know? To say, in effect, "we cannot find how we ought to decide, and therefore we decide adversely to the appeal" does not seem to match well.

Are we not led to agree with Commissioner Daniels, who says in his vigorous dissent that it appears irresistibly to him that the reluctance to confess the justice of increased rates "is largely rooted in an unwillingness to find that the revenues of the carriers as a whole are smaller than is demanded in the public interest"? An "unwillingness to find" certain things, if this goes past the human regret over what may be deemed intrinsically undesirable, is not a characteristic of the judicial temperament. Yet the Commission—as we cannot justify ourselves in forgetting—has long held an attitude as if its members regarded themselves as counsel or defenders of the shippers. The relation of Mr. Brandeis to that body, as nominally expert adviser yet always against the roads when they came as petitioners or remonstrants, has been anomalous; can we imagine a representative of one of the parties to a case in court openly acting as confidential private counsellor to the judges or sitting close to the ear of one of them on the bench? And here is Mr. Clifford Thorne, quoted now as declaring that the action of the Commission is a great victory "for his side," and that he is delighted because nine tenths of the desired increases in which Iowa is interested were denied. Mr. Thorne has his right to an individual view, but Mr. Thorne is also mentioned as "chief of the counsel representing the shippers" at the hearing, and he is also chairman of the Iowa Railway Commission. Here is a blending, in his person, of incompatible relations such as ought to be deemed intolerable in any procedure to find real facts and reach real justice; it would be so deemed, would it not, if the country had not been gradually made blunted and wonted to it?

PUBLIC STATEMENTS BY PROMINENT OFFICIALS

The past month has witnessed a number of important developments affecting the railways. This is patricularly true with reference to decisions which have been rendered by the Interstate Commerce Commission and which are dealt with more fully elsewhere. Prominent officials have taken occasion to discuss some of these matters in the public press, and in most instances have not hesitated to criticise the Interstate Commerce Commission on account of the restrictive influence which it continues to exert over railway progress. In discussing the recent decision of the Commission, in which the Western roads were largely denied their request to increase certain freight rates, Lewis J. Spence, director of traffic of the Southern Pacific, made the following statement:

> In view of the clearly established necessities of the railroads whose revenue is involved in the Western rate case, some of which are already in receivership and others solvent only because of the financial support of the owners, the decision of the Interstate Commerce Commission would be exceedingly disappointing if we had not become so accustomed to receiving inadequate relief that we do not count our chickens before they are hatched, or capitalize the blessings that we should receive. However, the recognition of the carriers' necessities by some of the Commissioners in their dissenting opinions will be a valuable contribution to the education of those who read and the improvement of public sentiment toward the railroads which is now making such rapid progress

and to which our regulating bodies in the last analysis will become responsive.

Another experienced and influential traffic authority whose name, however, has not been made public, is reported by the *Wall Street Journal* to have made the following statement:

> Mr. Daniels made the most careful study of this case, which he heard from start to finish, and he told me the railroads had won it from the standpoint of facts or of logic. I like the way he lambasted the majority for their sophistry and narrowness of view and inconsistency. He realizes that railway expenses cannot be compared fairly with agricultural, industrial or commercial costs. He is quite right in saying that the Commission revokes some principles it followed in the Eastern rate case and sets forth some novel and dangerous doctrine, which leads it to disallow an increase in rates except on such specific evidence relating thereto as would make a refusal manifestly impossible.

The decision of the Commission in the anthracite rate case, by which it is estimated that the carriers involved will have their annual income reduced by approximately $8,000,000, has caused the greatest anxiety among railway officials and would appear to largely offset any benefit which may be derived from the Commission's favorable decision in the Eastern advance rate case. L. F. Loree, president of the Delaware and Hudson, in commenting on this decision, is quoted as having made the following statement:

> The officers of the carriers affected and the owners of their bonds and shares believe that their interests would have received more adequate consideration had the Commission found it convenient for its members to hear the evidence in person, and had they not relied upon an incomplete and unsatisfactory synopsis of the testimony submitted by subordinates.
>
> If Congress has so multiplied the Commission's duties that personal attention to such important investigations is not possible, it is desirable that Congress and the public should be fully aware of the fact. It is not right that the great property interests of the railways should be at the mercy of the Commission's subordinates.
>
> In 1907, the road's best year, the net income was only 7.41 per cent of the cost of their properties though the Commission denies that costs were ascertainable. In 1914, the road's worst year, the net income was only 5.06 per cent.
>
> Omitting the Pennsylvania system, the total gross receipts of the other anthracite railways in 1913 was $274,593,886, and $85,618,436 of this aggregate, or 31.6 per cent, came from anthracite transportation. Therefore, to strike at the anthracite revenues is to strike at the very heart of their business. As they were built and exist mainly to serve the anthracite industry, such an attack must impair the very foundations of their existence.
>
> Although the date when there will be no more anthracite to move is visible and calculable and, particularly for the northern regions, is not far distant, no traffic to take its place is in sight or is likely to appear. This fact ought to be recognized in any determination of anthracite rates, for just rates must not only provide a fair annual return upon present investment, but must safeguard the investment against this impending loss.
>
> The cost of producing anthracite is estimated to have increased on the average 39 cents a ton between 1905 and 1914, while the average wholesale price increased 36 cents. It is apparent, therefore, that the per ton margin between cost of production and returns from sales is smaller than when prices were lower.
>
> Sufficient time has not elapsed since the receipt of the complete opinion to ascertain its full effect on the earnings of the carriers. It seems probable, however, that the opinion will affect not only the receipts of the anthracite carriers who were parties to the proceeding, but will also affect the receipts of all roads handling anthracite coal, and if so it will affect practically all roads in Trunk Line territory.
>
> It is possible that the total loss of revenues will be greater than the aggregate increase granted to all the carriers in the Eastern rate case. The newspapers have been inclined to feel that the railroads were receiving great benefits at the hands of the Interstate Commerce Commission. It is quite evident that their disposition is to "give it in drops and take in bucketfuls."

In view of the effffect of the influence of these decisions upon the general railway situation, it is interesting to note how deeply they concern the general public. Without considering the vast army of railway employes, the great supply companies and their employes, the banks, insurance companies and others who are more or less dependent upon the prosperity of the railways, a recent investigation by the Bureau of Railway Economics at Chicago, discloses the fact that the actual stock ownership of the railroads of the United States which is widely scattered throughout the country is represented by 622,284 persons of record. While some duplication doubtless exists, because of the ownership by one person of shares in other roads, the figures, nevertheless, strikingly illustrates how widespread is the direct interest in the financial success of the carriers.

Another point of interest, from the employes' standpoint, is found in an analysis recently made by W. A. Worthington, vice-president and assistant to the chairman of the Southern Pacific, who, in considering the division of railroad income between capital and labor, finds that in 1904 labor received 58.73 per cent of the total railway income divisible between capital and labor, whereas, in 1914, ten years later, it received 66.04 per cent. Capital in 1904 received 41.27 per cent, while in 1914 it received 33.96 per cent. While capital's share of the income relatively decreased during this period and labor's was increasing, capital's investment in railways increased 57.13 per cent, or from $11,511,537,131 to $16,936,697,840, while the number of employes increased 30.81 per cent, or from 1,296,121 to 1,695,483. The gross operating revenue of the railways of the United States in 1914 was $3,047,019,908. From this Mr. Worthington deducts all operating expenses, except wages, $826,890,687, and taxes, $140,531,575, which leaves $2,079,597,646 available for division between labor and capital. Of this total, $1,373,422,472, or 66.04 per cent, was expended for wages to labor, and the balance, $706,175,174, or 33.96 per cent, was left for capital, available for interest on bonds and other debt dividends, improvement to property, depreciation, miscellaneous expenses and surplus. In 1904, out of a total operating revenue of $1,975,174,091, the amount divisible between labor and capital was 1,392,180,294, of which 58.73 per cent was paid for wages and 41.27 per cent was reserved for capital.

The return to capital in 1914 represented 4.17 per cent on the railway investment, whereas in 1904 this return was 4.99 per cent. Comparing 1914 with 1904, there was an increase of $687,417,352 in railway income available for paying labor and for capital purposes. Of this amount, $555,823,662, or 80.86 per cent, was paid to labor, and $131,593,690, or 19.14 per cent, of the total remained for capital purposes. This shows that of increment in divisible net income during the ten years, labor received four fifths and capital one fifth. As compared with the latter, the investment in road and equipment increased $5,425,160,709, the increment available for capital purposes being 2.43 per cent upon the increased investment.

Returning recently from a Western trip, President Underwood, of the Erie, is quoted as asserting that there would be no genuine and universal prosperity in the United States until the railroads receive treatment from the Governemnt authorities and public that will enable them to make satisfactory net, as well as gross returns. As to railroad revenue, Mr. Underwood said:

I am not in favor of increasing passenger rates. On the contrary, I believe that they should be reduced, so that no one would be charged more than one cent a mile for riding on the railroads in the United States. If this were the rate, enormous sums would be saved in the making and filing of tariffs alone. The mileage of every road could be printed on its folders and the latter would be the passenger tariff sheet. Everybody would then know how much it would cost to travel between two given points, and the work of accounting by the railroads would be very greatly reduced.

I do not agree at all with the idea that has prevailed for some time, and which is declared to be fundamental, namely, that each class of traffic should bear its burden of the expense. I believe that this idea is sophistical. My plan is not only to reduce passenger rates to one cent a mile, but to increase freight rates 20 per cent on the average. Passenger rates are a direct tax upon everyone buying railroad tickets. Freight rates are only an indirect tax and an increase in them sufficient to put the railroads on a sound earning and financial basis would not be appreciably felt, either by those paying freight rates directly, or by consumers of products carried by the railroads, who, of course, pay at least a part of the rates indirectly.

If the one cent a mile would not cover all of the cost to the railroads of a reasonable passenger service and show a profit, whatever adverse balance there might be should be absorbed in the freight earnings where it would not be felt.

THE LOW LEVEL OF AMERICAN FREIGHT RATES

Many investigations conducted within the past few years have all tended to show that freight charges on American railroads are lower than in any other important country in the world. Added proof of the correctness of this assertion is found in a brochure which has just been printed by the Bureau of Railway Economics for the use of its members under the title of "Comparison of Railway Freight Rates in the United States, the Principal Countries of Europe, South Australia and South Africa."

Some very interesting tables are found in this little publication, the sources of the figures being the reports of the National Waterways Commission, the official railway reports of foreign countries and authoritative treatises on foreign railways and their rates. These tables, according to the brochure referred to, were submitted through the Department of State to the official railway organizations of the several foreign countries covered by the comparison and partly revised by them. The outbreak of the European war prevented a complete revision, but the figures, so the Bureau asserts, are believed to be substantially correct. A great many considerations and factors, which cannot be detailed here, naturally enter into the relation of freight rates to the railroad business and to the community at large. European freight rates are not so simply adjusted as in the United States, both France and Germany having express and accommodation freight charges as well as much lower rates applying to export trade than to local traffic. In Spain, furthermore, a tax which is paid by the shipper is levied on freight collections in addition to the rates given in the tables. The tables, moreover, do not indicate the economic or political motive in adjusting the various rates, nor in most cases is any attempt made to show the part played by forwarding agents or by terminal charges. Nor do the compilers attempt to indicate the relations, based on wages, between the power of the wage earning population in one country to purchase transportation and that of the wage earning population in another. It has been estimated that the lower freight rate in this country is due largely to management, "greater density of traffic, lower cost of motive power, and the greater endurance of the average American locomotive."

The comparison of rates is expressed in money alone. This comparison makes it "evident that upon this basis the average charges per ton-mile upon the different commodities covered range lower, and in most of the cases much lower, in the United States than the corresponding charges of the railways of the foreign countries."

A few figures from the tables of charges on large staple commodities will make the comparisons graphic. Take, for example, a bulky crude staple like coal, and on the other hand, fully manufactured goods such as textiles—cotton, linen and woolen goods.

Freight rates on coal (bituminous) in Great Britain over distances varying from 14 to 212 miles show an average of nine tenths of a cent. The average rate for corresponding distances in the United States is eight tenths of a cent. The English average, therefore is about 12 per cent higher than the American. For long-distance hauls in the United States, the rates are even lower. Comparisons of French rates were made for distances varying from 22 to 513 miles. The average charge per ton-mile for these distances in France is .83 cent. The average charge on American railroads for corresponding distances is .59 cent; the French rate, therefore, is about 39 per cent higher than the American.

Coal rates for distances varying from 21 to 821 miles were averaged in Germany with a resulting charge of .75 cent, while the corresponding average for the United States was .53 cent. This shows that the average German rate is higher by 41 per cent.

The runs considered in Austria varied from 27 to 648 miles, the average charge per ton-mile being slightly over eight tenths of a cent; the corresponding rate in the United States for the same distances was considerably less than five tenths of a cent. The Austrian rate is higher by 88 per cent. The difference between the American and the Hungarian average rate on coal is less, the latter being only 51 per cent higher.

Distances in Russia correspond more nearly to those in the United States than do those in any other European country. Distances from 116 to 2,254 miles were averaged for coal. For Russia the average is over five tenths of a cent; for the United States, slightly under four tenths. The Russian rate thus is higher than the American by 41 per cent.

In Holland, over distances from 70 to 211 miles, the average charge is two thirds of a cent, with a corresponding American rate of slightly under eight tenths. In this case the higher American rate is explained by the fact that for short hauls American charges are relatively higher. In the examples considered here also the Dutch rates were "special for export."

In Sweden, distances from 8 to 379 miles showed an average of slightly under eight tenths of a cent for Sweden and three quarters of a cent for the United States, making the Swedish rate some 4 per cent higher. A range of from 7 to 523 miles were covered in considering the Spanish railroads. This showed that the Spanish rate per ton-mile is 1.8 cents while the American is six tenths of a cent, making the Spanish rate 203 per cent higher. In Italy the average was 1.4 cents for distances varying from 31 to 237 miles, while the American rate was .78 cent, or one half as great.

Distances from 2 miles to 206 were considered in Belgium, showing an average charge per ton-mile of .876 against 8.74 cent in the United States. In South Australia, the distances considered were from 7 to 688 miles, indicating an average of 1.55 cents as against the American rate of .48 cent. The South Australian rate is therefore 221 per cent higher. In South Africa 188 to 423 miles were considered, showing an average rate of .84 cent against the American rate of .53 cent, making the South African average 59 per cent higher.

A comparison of the rates on manufactured goods is perhaps best made by giving the figures for the transportation of textiles. cotton, linen and woolen goods. In the

United Kingdom, the figures obtained were for distances of from 10 to 286 miles and the average charge for cotton and linen is given as 4.73 cents per ton-mile, while for woolen the figures are 4.72 cents. The American rates for cotton and linen over the same distances average 2.72 and for woolen 3.08 cents. The English average for cotton and linen is 74 per cent higher than the American and for woolen, 53 per cent higher. The only other country the rates of which on these textiles are compared with American is Belgium. The distances considered are from 21 to 94 miles and the rates vary from 4.1 cents per ton-mile for the cotton for the shortest distance down to 3.01 for woolen for the longest distance. In the United States these corresponding rates vary from 6.3 to 2.2 cents. On long distances in the United States, taking approximately in a thousand mile run, the rate averages about one cent.

AN EXPERIMENT IN HUMAN NATURE AND ITS RESULTS

Last year the superintendent of one division of the Pennsylvania Railroad decided to try out a new idea. He believed that instead of posting a "Discipline Bulletin" each month—showing what rules had been broken and what suspensions were imposed upon delinquent employes—better progress would be made by reversing the process, creating an "Honor List" and posting the name of every man whose service had been especially meritorious.

He has put this belief to a practical and thorough test. Six months of the present year show these results:

62 per cent decrease in cases requiring discipline.
71 per cent decrease in total days' suspension of employes.
72 per cent decrease in wage loss to men through suspensions.

These figures summarize what has been accomplished on the Conemaugh division under Superintendent Keiser's "Merit Plan."

No change has been made in the discipline rules of the division or in the methods of administering discipline. All that has happened is that the men are working harder to get their names on the division's "Honor List" than they ever did to keep the "Discipline Bulletins" down.

The reason? Human nature seems to be made that way. Mr. Keiser's plan is merely a bit of applied psychology.

The older system gives prominence to the wrong men do. Mr. Keiser's system puts the emphasis on the good.

The spirit of the old plan says, "Do wrong, and you will become a public warning." The spirit of the new plan says, "Do right, and you will be publicly commended."

The one appeals to fear and the other to hope, and when the test was made on the Conemaugh division, hope won out as a motive for influencing the actions of men.

Here is another way to look at it. Under the system of "Discipline Bulletins" it is necessary for a man to get himself into trouble before he does anything that can serve as an example to others. Under the Conemaugh division "Merit Plan" he becomes an example simply by doing right, and the better he does his duty the more prominent that fact becomes.

It is really much the same as the difference between telling a man what not to do and telling him what to do. "Dont's" no doubt have their place and value, but by themselves they never accomplish positive results.

The Conemaugh division "Merit System" includes an annual "Honor List" for the entire division, on which are placed the names of all men who were in active service throughout the calendar year and whose discipline record during that period was 100 per cent perfect. Nearly 400 men had their names on the "Honor List" for 1914, the first year in which the plan was in operation.

In addition to the "Honor List" for the year, monthly supplements are issued. These supplements briefly place before the men the good results achieved on the division during the month by reason of satisfactory service.

The supplements also include the names of employes who have particularly distinguished themselves by excellent performance of duty, by unusually high marks in the passing of examinations, or who in other ways have merited special commendation.

Copies of the annual "Honor List" and of the monthly supplements are kept posted, under glass, in the offices of the division superintendent, train master, assistant train masters, road foremen of engines and engine house foreman.

THE VALUE OF EFFICIENCY TESTS.

Efficiency tests have long proved a bone of contention between railway officials and their employes. It is doubtful, however, if any other single effort results in developing a larger measure of safety both for the employes and for the traveling public. Not knowing when these tests are to be made, and fully appreciating the effect upon their records, of a failure to meet them, men in the operating departments, and especially those in control of trains, are constantly on the alert and the effect upon the service is of incalculable value.

An interesting sidelight on the efficiency of the railroad man of to-day is afforded by the figures of Vice-President and General Manager W. R. Scott, of the Southern Pacific, on the efficiency tests made during the last three years. Out of 74,116 checks on the observance of operating rules by trainmen and enginemen on the Pacific System there were but few cases wherein the signal was not respected—a percentage of 99.83 perfect.

These tests are one of the biggest factors in the railroad's protection of the life and limb of the traveling public. By them, officials are enabled to detect the careless man and, in their opinion, the man who is careless is not the man to be entrusted with any share of the responsibility of safely transporting passengers from one part of the country to the other.

The tests are made by division superintendents and their respective staffs and under conditions that exist in everyday service. The feature of them, however, is that they reveal a remarkable degree of efficiency on the part of the railroad employe, something that is reflected in the great record made by the American roads in their safety first campaigns. The frequency of the checks made on the heed of danger signals only serves to emphasize the capability of the men. There are twenty-two tests in all and each official making it is required to keep an accurate record of the checks on individual employes. He fills out a blank showing the date, time, location and train and engine number; the name of the conductor and engineer and the kind of check made.

Turning from the West to the East, it is of interest to know that the first six months of 1915 the Pennsylvania Railroad made more than 2,000,000 efficiency tests of all kinds, and 99.9 per cent of them showed perfect observance of all rules and regulations on the part of 135,458 employes.

Here are some results of this record:

Twenty-eight and one half per cent less employes were killed in the first six months of 1915 than in the corresponding period of last year. This was not due to a heavy decrease in train mileage, as passenger train miles were only six per cent and freight train miles eight per cent less than in 1914. In 1914, 119 employes were killed in the first six months from various causes, while in 1915, 85 employes were killed.

No passenger was killed in a train accident in the period covered by these tests—as a matter of fact no passenger has been killed in a train accident on the Pennsylvania railroad since 1912.

A decrease in accidents is invariably accompanied by a high record of efficiency on the part of all employes, as shown in the efficiency tests which are made regularly. These tests cover the work of both officers and the rank and file.

The records for the first six months of this year show that 23,390 tests were made in the use of signals, and 99.4 per cent of them showed employes living up to the strict letter of the rules. Over 10,000 tests were made with signals set at stop, and in only 13 cases did the trains fail to stop before passing the signal by so much as a foot.

NOT ONE PASSENGER KILLED IN A COLLISION IN THREE MONTHS

United States railways performed the greatest safety first feat in their history in the three months, October to December, 1914, when they carried 230,500,000 passengers 7,834,000,000 passenger miles without the loss of life to a single passenger in a collision, and a total of only 78 fatalities to passengers, employes on or off duty and other persons, due to train accidents. Of the 78 killed, 14 were persons who invited death by using a railway track as a promenade, being trespassers. Thus only 64 fatalities in the entire three months were rightly due to train accidents.

Figures compiled by the Bureau of Railway News and Statistics from the quarterly accident bulletins of the Interstate Commerce Commission since 1901, when the law requiring monthly accident reports first went into effect, show this achievement to have been unprecedented. Even if it had been equalled before 1901, the comparison would be worthless because of the gigantic disparity in mileage and traffic then and now.

Only twice before since 1901 has the country's entire railway mileage gone through an entire quarter without a fatality to a passenger in a collision. The clear records were made in April-June, 1912, with 7,865,000,000 passengers carried one mile, and in April-June, 1909, with 7,328,000,000, against the 7,834,000,000 in the 1914 quarter.

With only 41 fatalities to passengers in collisions in the entire year, 1914 had a record of immunity exceeded only once before, by the 39 in 1913. The recurring figures since 1901 graphically record how inevitably the laws of chance operate in such gigantic combinations of forces as surround billions of passenger and ton miles over hundreds of thousands of miles of railway. But for an extremely exceptional figure in the third quarter of 1914 the year's total would have been only five instead of 41, against 39 the previous best.

Never before, however, was the record of 78 fatalities to all persons from train accidents equalled. Only once was it approached, in April-June, 1909, when 99 fatalities occurred. How remarkable is the record is shown by comparison with preceding quarters, which, in order to January-March, 1912, reported 181, 104, 120, 191, 211, 152, 158, 250, 288, 148 and 267.

Not only the fourth quarter, however, but the entire year 1914 attained a record in this respect, its total of 483 deaths from train accidents to all persons, passenger, employe or other, never having been equalled before. Back to July 1, 1901, the yearly totals are 1914, 483; 1913, 712; 1912, 953; 1911, 741; 1910, 1,058; 1909, 713; 1908, 612; 1907, 1,237; 1906, 1,209; 1905, 1,086; 1904, 1,041; 1903, 1,256; 1902, 881; ½ 1901, 512.

In this downward scale is pictured the remarkable results of the "safety first" crusade, to which, with superior equipment, it may be attributed. How remarkable it is can be realized only by remembering that, against 1902, the railways in 1914 operated 53,000 more miles, carried 383 million more passengers and 735 million more tons, over 15 billion more passengers one mile and over 130 billion more tons one mile, gains of from 25 to 75 per cent.

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SECURING BUSINESS THROUGH MECHANICAL DEPARTMENT

Ordinarily the mechanical department of a railroad is not called upon directly to produce new business for the company. While the excellence of the service which they provide goes a long ways toward the success of the road and therefore, has its intimate bearing upon the volume of traffic, it is rather unusual to see mechanical men personally engaged in increasing passenger travel. However, there has been a striking example of this recently on a Western road, reports from Missouri stating that a master mechanic of the Missouri Pacific located at Kansas City and members of his department have made a remarkable record in securing passenger business for this line, their efforts having resulted in adding 125 California passengers to those going to the World's Fair and 19 passengers to those traveling to Colorado. This was done within a comparatively short time and speaks well for the loyalty of all concerned in this splendid showing.

In commenting on these results, an official of the company states that it is but one of a great number of examples that have come to his notice of the interest and enthusiasm with which all the employes in practically every department are working for the success of the company. It is reported that many freight representatives are proving highly successful in the role of passenger agents and that a number of train auditors have also made remarkable records. Even express agents appear to be doing their share, and the company reports that an agent of the Wells, Fargo and Company Express has brought more than thirty people to their ticket counters at St. Louis for California tickets.

The results of this effort show the possibilities of utilizing the services of certain employes in a manner which should result in a substantial increase in revenues and yet interfere in no way with the performance of their regular duties. It also represents an expression of loyalty which should prove a source of real gratification to the management.

Contemporary Opinion

Eastern Rate Case—A Year After.

(From the Wall Street Journal.)

WHAT an unenviable position the Interstate Commerce Commission would occupy today if the European war had not opened to it a quick and easy escape from the consequences of its original decision in the Eastern rate case is strikingly shown in some of the Commission's own recent decisions. With a single important exception, all of the props which the Commission then told the railroads they should use to support their failing revenues instead of a general rate increase have been tried and have broken down.

The Commission told the railroads their passenger business was losing money and that the States would be sweetly reasonable about their two-cent fare laws. It allowed them to charge higher interstate passenger rates, but not a State budged.

Through a reform of their relations with industrial railways the carriers were told they could realize $15,000,000 a year; from the imposition of charges for "spotting" cars and for "trap car" service other millions; and from the overhauling of their terminal regulations and charges, another pretty penny.

During the fall and winter the carriers filed new tariffs on all these subjects. These were suspended pending investigation, and now the Commission has ordered everyone of them withdrawn.

All of these expedients were resorted to by the railroads because the second decision, in December last, allowed the five per cent advances on only about half the traffic, producing only $25,000,000 or $30,000,000 out of the $50,000,000 the carriers had attempted to get; and because Commissioner Harlan, who has thrust more spokes through the railroad wheels than any other one Commissioner, declared they needed more than the $50,000,000.

In turn the efforts to conform to suggestion were quashed by the Commission because the proposed new schedules were not framed to its liking. Perhaps they should have been sat upon. That is a highly technical matter. But the railroads warned the Commission early in the case that any attempt to change practices which had grown up through eighty years of railroad and industrial development, which were so intimately and delicately related to the price and value of the service, would take years to accomplish. It has already taken a year, and the first attempt has failed.

So the judgment of railroad officers is vindicated. But meanwhile the owners of these roads have obtained only half the additional annual revenue that so stalwart a regulator as Commissioner Harlan concedes they are entitled to in common justice.

Narrow and Partisan.

(From the Bache Review.)

IT is impossible to reflect upon the circumstances of the decision of the Interstate Commerce Commission in the Western rate case without becoming impressed with its partisan character. Here is a majority composed of men nearly all appointed under Republican administrations, deciding against the railroads(the miserable pittance of increase granted cannot be rated other than adverse), while a vigorous majority report in favor of the roads is made by Daniels and Harlan, Commissioner Daniels being an appointee of President Wilson, and credited with representing the President's views more thoroughly than anyone on the Commission.

All but one of the Commissioners signing the majority report are appointees of Republican Presidents and represent that confirmed spirit of antagonism to railroads of which Taft's administration became a hotbed cultivated to highest efficiency by a company of misguided partisans, with Wickersham at the head, and Taft easily molded into compliance. The bankruptcy or near bankruptcy of half the railroad mileage in the United States is due to this campaign which resulted in the wrecking of prosperity.

Much of the bad times since 1910 can be traced to the desperate condition into which the railroads have been gradually brought by the senseless tactics of rate reduction started during the Taft administration.

The narrow character of the majority of the members of this Commission, the most important in the United States, is demonstrated by the statement of Commissioner Daniels, who says that he is convinced that the majority of the Commissioners in refusing the principal increases, took the position that the financial straits of the railroads were traceable to financial maladministration.

He stated that the railroads had abundantly demonstrated that public interest demanded an increase in rates and that they were in fact entitled to increases far in excess of those asked.

Can anything more narrow and partisan be imagined than the position of the majority? Because a few railroad executives and managers had committed flagrant breaches of trust, the whole railroad system of the United States must be screwed down to starvation rates and haif of it thrown into bankruptcy. And this bankruptcy of the roads has dragged back the country's business to a point where American commercial enterprise has been unable to make deserved profits and the country has been cheated out of prosperity for five years.

The railroad presidents and managers must be thoroughly cowed if they accept this decision without a fight. One official is reported as saying, "However, we are thankful for small favors." Why should any such cowardly attitude be assumed by an official representing needy and unjustly treated stockholders. Why do not the railroad executives put up a fight against such outrageous injustice? Is it that they are satisfied with their own large salaries and are resolved to keep their own positions no matter how much stockholders suffer; they themselves being small stockholders with little, really personal, interest in earnings?

What is needed as much as a reorganized Inter State Commerce Commission is a body of railroad executives who will not submit to be browbeaten by an inexpert political body, but will organize a country-wide contest in the interest of the whole United States. Such courageous action would meet the approval of a vast army of stockholders and business men, let the facts once be thoroughly understood, as they would be if the campaign were carried on energetically.

Western Rate Decision.

(From the St. Louis Globe-Democrat.)

THE decision of the Interstate Commerce Commission on the application of the Western railways for increase of freight rates has unusual aspects. Two of the Commissioners, Harlan and Daniels, agreed to the increases allowed but filed opinions dissenting from their colleagues in their denial of other increases. The Western railways, following the reasoning of the Commission in the case of the Eastern railway cases, did not ask a horizontal increase, but sought what they termed an equitable distribution of charges in addition to a reform of rules, regulations and classifications. The majority opinion seems to have been unfortunate in its explanation of the denial of increase when it assailed certain roads for gross official mismanagement, that has resulted in an increase in operating costs. Commissioner Daniels in his dissenting opinion showed how untenable such a position is. If a single road that has been honestly and efficiently managed has proved that present rates are unremunerative, all the majority's moralizing topples over. "It is suggested," said Commissioner Daniels, "that the appropriate remedy is the prosecution and punishment of individual offenders, not the continued withholding of adequate rates to the carriers as a whole." Even the stockholders who have been ruined through the maladministration of their directors are entitled to justcie. But the stockholders of roads which have been honestly and economically conducted have a right to demand that they shall not be punished for the wrongs of others.

Commissioner Harlan favored granting increases on live stock, fresh meats, packing house products and cotton piece goods. Commissioner Daniels held that the carriers were entitled to increases "far in excess" of those granted. We may talk of the government and deal in other abstractions, but the fact remains that the fate of the railways is in the hands of a certain number of men, with the usual human infirmities. A majority of these men at present seem to be hostile to the railways, judging from the character of their arguments, the only thing that the public can judge from, in view of the disagreement as to facts.

Sentimental Freight Rates.

(From the New York Commercial.)

WESTERN railroads did not get all they asked, but they did win the support of two prominent members of the Interstate Commerce Commission for their full claims on grounds that will appeal to the justice of the American people. The majority of the Commission gave as a reason for refusing part of the advances asked "that particular carriers by reason of financial mismanagement reflected in their operating methods have been uneconomical and wasteful in expenditures and this necessarily increased their operating ratio."

Commissioners Harlan and Daniels, the minority members, held that the roads were entitled to increases far in excess of those granted by the majority. Mr. Daniels said there was no question as to the facts regarding the finances of the Rock Island, "Frisco" and Alton systems but the sin of their officials had nothing to do with the freight rate case, and the advances asked were "justified on their own merits. He suggested sarcastically that the appropriate remedy is to prosecute and punish offenders and not to deprive common carriers of adequate rates.

Nobody can find fault with the administration of the Atchison, the Chicago and North Western, the Union Pacific, the Burlington or the Hill roads. The operating ratio of these lines has been reduced to the minimum and not a dollar has been spent for two years that could be saved. Even in the Rock Island case the operating management of the railroad has been highly efficient and the company is not in trouble because its business as a common carrier has been neglected. Stock jobbing is the root of its ills.

It is palpably unjust to withhold rightful dues from all Western railroads because three or four of them have been mismanaged. The evidence submitted in support of higher rates bore only on the costs of operation and maintenance which have been increased by higher wages and prices of supplies. The normal operating ratio of a well managed railroad should be about sixty-three per cent of its gross operating revenue, but it far exceeds that proportion now. When the operating ratio rises to seventy or eighty per cent and even higher railroads cease to be a good conservative investment because twenty per cent of the gross receipts does not provide interest on bonds, dividends on stocks and permanent extensions and improvements of the system. If the owners permit their property to be wasted by their directors and officials that is their own affair, but those who do things better should not be punished for the sins of other offenders. Freight rates should not be regulated by sentiment or a burning desire to punish somebody for an offense that has no bearing on the matter. The sole test is whether the rates are reasonable and just.

Ironies of Rate Regulation.

(The Onlooker in the "Annalist.")

A PESSIMISTIC view of rate regulation in this country is not necessarily a view antagonistic to the idea that the selling price of transportation should be fixed by a Government body mindful of the apparently conflicting interests of railroads, shippers, and consumers. Pessimism may be aiming only to the fact that the Interstate Commerce Commission has no theory of rate regulation. It has never, so far as one can guess, felt the need of one. It has dealt with successive situations by a thumb rule of compromise. It has sometimes done the right thing for wrong reasons; sometimes the wrong thing for right reasons. After all these years of trial and error the railroads, seeking permission to raise their rates, cannot be sure what they will have to prove to win their case, nor can their opponents make sure what other things to prove to beat it. In one case the railroads prove that they need the money and win, in another they prove that they need the money and lose, because they ought to have shown that their rates were reasonable.

A year ago the Interstate Commerce Commission, a second time, denied the railroads in Eastern Classification Territory permission to raise their rates in a horizontal manner. It took the ground that its function was to determine the reasonableness of rates; whereas the question of raising all rates as the railroads proposed, on the plea of needing more revenue, was not a question of the reasonableness or unreasonableness of rates, but, in fact, a question of public policy, which the Commission had not the power to decide.

Instead, it proposed to the railroads a gradual and fundamental revision of the rate structure, saying in effect this: "It is notorious that the rate fabric is a crazy quilt. Some rates are too low; some are too high. Let us revise them intelligently. Take all those rates that are now unremunerative, bring us the proof that they do not pay, and we will raise them enough to make them profitable."

That did not satisfy the railroads. They wanted immediate relief. But it was sound theory, whether you accepted it or not as a practical remedy.

Five months later, the war having furnished the railroads with a pretext for renewing their application, the Interstate Commerce Commission reversed itself, abandoned its theory, and granted the increase—because the revenues of the railroads in the aggregate were insufficient! That was to say merely that the carriers needed the money.

Immediately the Western railroads applied for permission to increase their rate, acting concertedly, and last week the Commission decided their case. Some rates were permitted to be raised; others were not. And the decision turned on the reasonableness of rates, not upon the necessities of the carriers. True, the Western railroads had not, on the Eastern carriers' example, contended for a horizonal increase; they proposed to raise certain schedules only. But what the carriers choose to do is not binding on the Commission. It might have said to the Western roads: "Make your application for relief in the same form as that of the Eastern roads. In that case the Commission established a precedent. The reasonableness of rates, per se, will be determined in other circumstances later. This is on the plea that your aggregate revenues are inadequate." And, of course, the carriers would have been glad to comply.

Now, it may be argued that the intrinsic reasonableness of rates is the guiding principle; that the Commission only departed from it in the case of the Eastern roads and resumed it in the West. But, if that were true, how should it be accounted for that the Commission has adopted no test of reasonableness? It applied every measure it knew—cost of service, value of the commodity transported, carriers' investment—and found all of them inconclusive. And yet, a majority of the Commissioners did reach a conclusion as to the quality of the rates in question, changed some, declined to change others, and rendered a decision satisfactory to nobody.

A minority protested that the case ought to have been decided on the general question of the adequacy or inadequacy of revenues, everything considered, as in the Eastern case, and filed dissenting opinions. A divided Interstate Commerce Commission is an ironical commentary. Men do not divide on questions of fact. They disagree on questions of policy. Therefore, a division of the Commission proves that a case ostensibly decided upon the limited issue of rate reasonableness, the evidence consisting of statistical facts, is really decided as a question of policy. It was not good policy for the Interstate Commerce Commission to handle the Western case as it had handled the Eastern one; therefore, it investigated not the necessities of the carriers, but the reasonableness of particular rates. It confessed that the effort to test a rate by the property investment behind it was frustrated by lack of information, by differences of statistical method and the general inadequacy of the facts. Yet it went on to say, very learnedly, that if you assumed a valuation of $30,000 a mile the return upon the investment would be a certain rate percentum, whereas if you assumed a value of $40,000 or $50,000 a mile, the rate of return would be proportionately lower.

Two days later the Commission announced its decision in the anthracite rate cases. It ordered a very heavy reduction of these rates, on the simple ground that they were too high. The reduction would make a difference of $8,000,000 in the earnings of the anthracite coal carrying railroads, but to the criticism that this was hard upon the railroads the Interstate Commerce Commission unofficially "pointed out" that it was a bookkeeping loss only; 80 per cent of the coal is mined and shipped by companies owned by the owners of the railroads, and cutting rates means only taking money out of the carriers' pockets and putting it into the coal companies' pockets. So there at last goes the popular theory of rate regulation, which is that it shall make things cheaper to the consumer.

Undoubtedly the Interstate Commerce Commission hopes to find itself on good working ground when the Government's physical valuation of the railroads shall have been completed, years hence, at a cost of $25,000,000, more or less. But it won't be any better off then. The results of this vast project of physical valuation must prove disappointing to all who think rates can be made to conform thereto. Such a valuation may affect future rates somewhat. It can hardly affect present rates. If the valuation should show the railroads to be heavily overcapitalized, rates could not be reduced accordingly, because that would bankrupt the carriers and cause a general panic. If it should show that the railroads were worth twice their capitalization, rates on that account could not be doubled, because, for one reason, the tonnage wouldn't move. The Interstate Commerce Commission in the meantime treats a freight rate as a thing which, though it be on accidental summation of theoretical and moral errors, is yet in itself a practical fact, intricately related to millions of other practical facts, and does somehow serve in spite of its infirmities and imperfections to represent what the carriers can afford to receive and what shippers can afford to pay for transportation. That is as the railroads have always treated a freight rate. That is why the rate structure is a crazy quilt.

Destructive and Constructive Regulation of Business.

(From American Industries.)

HAS regulation regulated? Has it maintained competition in business, or only among ambitious legislators? Have we "progressed" too fast and far towards government control—faster than changed conditions can be met—and have its destructive tendencies outrun its constructive necessities? Has regulation been narrowed and perverted into a mere policy of restraint, instead of exhibiting a broad and serviceable spirit of co-operation between government and industry?

We shall probably approach a discussion of these questions with better judgment by conceding, at the outset, that, in one form or another, the regulation of business is here to stay. Indeed, it is likely that the preponderating opinion of business men would be against a return to the days of unbridled individualism. At any rate, we have doubtless gone beyond the time when we may reasonably expect the government to indifferently watch the struggles of industrial warfare with no concern as to the weapons employed or the rules of the contest. It does not, however, follow that in exerting this control, it must also cripple; nor is complete domination of industry by the government the sole alternative of no control at all. We shall probably find, after experience has taught its lessons, that, on the whole, the largest industrial freedom consistent with an enforcement of the principles of fair play and business honor furnishes the wise middle ground of benefit alike to industry and the public.

It is scarcely outside the bounds of truth to say that for twenty-five years, nearly every legislative act dealing with business has been predicated upon the supposition that it is essentially dishonest. Search the statutes unweariedly for the same period, and we shall find little or nothing helpful to honest industry. Whether the excess of this class of legislation is the effect or cause of popular error is of little moment. It stands as an unfair indictment of business, for which it, inevitably, had to pay the penalty. One cannot be accused of blindness to the old abuses, in expressing the belief that had we been half as zealous in encouraging honest industry as we have been in making it appear dishonest, business would not be halting in the face of other conditions favorable to prosperity, fearful of what the future holds in store.

Shall we never learn that, under our form of government, nothing but legislative self-control and public sanity can stand between prosperity and utter chaos? In a country so singularly blessed with natural resources, we may not even shift the burden of disaster upon an unkind Providence. We must accept the fact that when it comes, it is of our own choosing and learn—even by the bitter cup of collective experience—that, as a people, we are our own worst enemies.

But we Americans never do anything by halves. If we inaugurate reform, we must administer it in heroic doses. This tendency to "go the limit" in whatever we undertake is inherent in the national character. Because, therefore, under a business system virtually without regulation or restraint, evils had arisen with which only the Federal government seemed adequate to cope, and because a reasonable application of its supervisory powers might accomplish much to be desired, we have therefore pursued the idea to a point to which the remedy is dangerously near proving worse than the disease. Granting, as we may, the need of regulation to correct the abuses of unrestricted, individual enterprise, it neither follows that, because a little is good, more is better, nor that we should endanger the whole business structure by pressing a wise thing to an unwise extreme. We shall make no progress by killing the goose that lays the golden egg; and we are in danger of losing the salutary results of that which has been done, by inviting the reaction which inevitably follows pushing a good thing too far.

That the work of correcting evils of a former business generation was, of necessity, destructive, in a measure, is conceded. That business should suffer in the process of readjusting itself to new conditions, was, perhaps, inevitable. But, if we are to participate in the march of progress, we cannot forever emphasize repression, with no compensating policy of encouragement. We shall, with better justice, punish business for its faults, when we have offered opportunity for its best development.

A Railroad at Eight Cents on the Dollar.

(From the Philadelphia Public Ledger.)

ANOTHER sweet dream of Gould has been ended by the sound of an auctioneer's hammer. The Wabash Railroad, root, stock and branch, has been knocked down to the highest bidder, who gave less than eight cents on the dollar to get the property. The Reorganization Committee paid $18,000,000 for the company's $237,000,000 of alleged assets. It thereby secures total ownership of a railroad extending from Kansas City and Omaha through St. Louis and Chicago to Buffalo and embracing over 2,500 miles of line. To build a railroad 2,000 miles long to the Pacific Coast cost the St. Paul over $125,000,000. Gould's own Western Pacific, from Salt Lake to San Francisco, about 900 miles long, cost three times as much as the Wabash brought at auction.

There was no hocus-pocus about this public sale. It was the privilege of anybody to bid, and the best bid took the road. But what an eloquent commentary this sale is upon the present market value of railroad properties! These are dark days for transportation companies. A far greater railroad mileage in the United States is now in bankruptcy than at any previous time in nearly two decades. The Wabash traverses one of the fattest sections of the world, where traffic ought to be heavy and constant, and yet the Wabash, even in that rich territory, couldnt' live. Moreover, with over $190,000,000 actually invested in road and equipment, besides other assets reported to have cost $47,000,000, the company was unable to earn enough to pay interest on its debt, let alone give the stockholders any dividends

Wabash paid far too great a price to get into Pittsburgh. It was one road too many to be kept alive at that point. Like the Western Pacific, it was not needed, and the public could not adequately support a useless extra line. The flood of railroad receiverships which has deluged the land during the past three years has utterly paralyzed railroad extensions in this country. Last year more miles of new road were built even in Canada than in the United States, although our population is over a dozen times as large. But with old railroads like the Wabash unable to survive the terrific strain of competition and the heavier burden of restrictive laws, there is precious little hope for new railroads.

Permanent Publicity.

(From Financial America.)

WE learn that there has been a great amount of interest aroused in Washington and elsewhere in connection with the movement sponsored by the Associated Railroads of Pennsylvania and New Jersey for the organization of railroads for protection against the enactment of vicious legislation. The Associated Railroads of Pennsylvania and New Jersey was the association which worked to repeal the full crew laws of those States and for the substitution therefor of commission authority over the manning of trains.

As recently reported in Financial America the executive committee of the Association, in its statement on its work in connection with the full crew laws, recommended such an organization so that the roads could also affectively lend their aid and influence in the passage of proper laws. The report said, in part:

"The foundation for a move of this kind has now been laid. The conviction is strong that our recent campaign went far toward establishing a firm and proper understanding between the railroads, their great body of employes and the public. The interests of all are closely interrelated. Their association is so intimate that there are no hard-and-fast dividing lines. The public has not always realized this and possibly railroad officers have not appreciated it as they should. The opportunity for correcting this condition is now presented. The people have demonstrated that when properly informed they will support the railroads when their cause is just. They are awakening to the fact that vicious legislation enacted against railroads reacts on themselves."

Outside of the question of what is or is not vicious legislation against railroads, we believe that the need of such an organization is demonstrated in the mere matter of the overwhelming number of bills affecting railroads presented in the various States during the legislative sessions. It stands to reason that simply as a bureau of information for the railroads such an association would be of great value. But as a bureau of information for the public it would be invaluable.

The Modern Railroad Way.

(From the "Railway Employes' Journal.")

UNTOLD misery has come out of the long, cruel season of depression that has afflicted the railroad business. Untold, because American railroad men and their women and children won't cry and won't beg, even when they are down to the starvation line. While they are waiting for better times they "grin and bear it" and go without. The experience of the last few years since the politicians and demagogues got the railroads by the throat has taught them well the bitter lesson of endurance.

But there's a leaven of blessing mixed with the misery: these fearful trying times of hardship have brought employe and employer closer together than ever before. They understand each other better now. Adversity often has that effect on men, breeding a fine brotherliness out of misfortune.

You can find signs of the better understanding to-day on many roads—so many that it is unfair to specify. Here, however, is a striking exhibit from the Southern Railway, which gridirons all the southwestern United States with its 7,000 miles of road. The exhibit is a bulletin sent out at the end of the fiscal year to all the Southern's thousands of officers and employes by President Fairfax Harrison, saying:

> We are closing to-day a fiscal year which has been full of anxiety and difficulty, but through team work and loyal self-sacrifices and effort by the entire organization, we have come out of it sound and full of courage for the future. This result has not been due to any one man or to any group of men, but to the co-operation of every man who has recognized the problem and given us in our common duty the best that was in him. I send my personal thanks then to everyone of you. The fight is not yet over, but the spirit of the past ten months is bound to see us through. Meanwhile, I want you to know my pride in you and in what has been done already.

This is true-sounding talk, further proof that the great railroad chief who went out of the Middle West to command the Southern is as able as he is courageous. It is a wise railroad executive who, in times like these, can lead his fighting force to serve not under him but with him. That is the modern way, discovered in distress and pioneered in adversity—the only way out of the railroad wilderness.

Real Helps to Business.

(From the "Washington Times.")

THE Baltimore and Ohio Railway traverses one of the greatest apple-producing and general fruit-growing sections of the world. The Shenandoah Valley and the West Virginia territories along its lines have become immense contributors in recent years to the world's supplies, especially of apples, and the traffic is grown to proportions of the first importance to the railroads.

Recently the Baltimore and Ohio has issued a directory of the apple and peach business, containing the names and addresses of fruit growers tributary to its lines, and indicating when possible the varieties to be obtained from each grower. Corollary to this aid to the buyer, another department of the directory contains names and addresses of buyers and dealers in these fruits throughout the East and Northern parts of the country.

This is sensible, practical effort in behalf of business development; and it is highly creditable to the railroad company. Incidentally, it somewhat weakens the claim which was put forth in behalf of some of the express companies at one time, that the Government wasn't quite a fair competitor in the management of its parcel post, because it employed various Government facilities in getting publicity and business for the new service. The advertising field is a wide one, and nobody is excluded from it. The Baltimore and Ohio has done, for its system, just what the postmasters of a number of cities have done for the buyers and sellers of their communities, in making up directories of people desiring either to sell or to buy by parcel post.

A Way Out.

(From "Concerning Municipal Ownership.")

IT is stated that the loss to the railroads this year on the parcel post carriage will come to not less than $8,000,000, there being that difference between the cost of the service they render and the amount they receive for rendering it. Can't our highly ambitious Postmaster-General devise some way of trebling this, making the loss to honest American enterprise $24,000,000, thereby wiping out his own very obvious and most disconcerting deficit? What is $24,000,000 among law-makers, backed by the cohesive power of official authority? Why even one of those Departmental Jugglers of Books could palm an insignificant little sum like that out of sight in a second, and bring it back to view again as a Dividend bearing rabbit in the hat of Uncle Sam without turning a hair. Perhaps another year will show the railroads paying the Post Office for the privilege of carrying not only parcels but all the rest of the post as well. It would be no more unjust than the present situation, and we marvel that so easy a way out of an embarrassing condition has not already suggested itself to the gentleman who asks to be put in charge also of our Telephone and Telegraph System.

Disruption of Great Lake Steamer Traffic.

(From the Headlight, Official Journal of Portland Transportation Club.)

PLANS for the sale or removal of lake ship lines now owned by the railroads were outlined June 21st by Walter B. Pollock, vice-president of the Western Transit Company, New York Central Railroad. The statement was made that the recent decision of the Interstate Commerce Commission, prohibiting the ownership of lake steamers by railroads will compel removal of a large proportion of the ships now operating on the Great Lakes to coastwise trade. Before the close of navigation on December 1 of this year many steamers now in use will be cut in two and transferred to the Atlantic shore through the Welland Canal.

The steamers which will probably be affected by the sale or transfer, as stated by Mr. Pollock, as as follows:

Western Transit Company	4 out of 10
Erie Line	6 out of 8
Mutual Transit Company	9 out of 12
Rutland Line	4 out of 6
Anchor Line	4 out of 12
Lehigh Valley	4 out of 6

In other words, thirty-one of the fifty-four steamers now operated by railroads will be withdrawn from Lake traffic before the decision of the Interstate Commerce Commission goes into effect. The total value of the ships thus removed, said Mr. Pollock, will reach $10,000,000. The Western Transit Company, he noted, has already considered plans and specifications for dismembering the boats to permit their passage through the Welland Canal to the Atlantic seaboard.

It is contended by men who are intimate with the affairs of the railroad steamship lines that the proportion of through rates allowed the Lake Line steamers after necessary expenses have been deducted is not sufficient to show profitable returns, and that the ships are run at a loss. The argument advanced is that the Lake boats, like most car ferries, are operated at a loss because of their value as feeders to the railways of business which would be diverted elsewhere if freight was not received for railroad terminals.

The first steamer to undergo the transfer to the Atlantic will be the George F. Brownell, of the Erie Line, which left drydock at Buffalo August 1. The parts were rejoined at Quebec. Arrangements are now being made at the latter port to hasten the work on the steamers to permit their reaching seaports through the St. Lawrence before navigation is closed. The total value of steamers owned on the Great Lakes by the railroads is estimated at $21,000,000. The assertion is made that through this decision $150,000,000 of railway property will, at forced sale, bring little more than junk prices.

Transportation Service, Present and Past.

(From the Southern Pacific Bulletin.)

IT is doubtful if the actual service furnished by a railroad is ever given its due appreciation outside of transportation circles. We are all prone to accept as a matter of course comforts and conveniences that, did we lack them, would be sorely missed. It's a good deal like the smoker on the desert. He had plenty of cigars but no match. All of which brings to mind that a good way to realize the value of anything is to consider what our loss would be were we compelled to do without it.

Consider what conditions were in the old days when there were no railroads. The traveler had to depend upon stages, creaky and dusty. Danger constantly beset him. To sleep he had to stop over night at a relay point and the stage had to wait when he wanted a warm meal. To-day the traveler reclines in a big, cushioned seat, admires the scenery, enjoys his meal in the diner and his sleep in his berth—all while the train is speeding him across the continent. He gets comfort, service, safety and speed.

In the old days the shipper had to depend upon the wagon-haul for his local transportation and, for transcontinental business, upon the sailing vessels that rounded the Horn. To-day, he gets a wire from New York calling for delivery of a carload of goods within a few days. He loads his car, turns it over to a carrier and the latter does the rest. His shipment gets serivce, safety and speed. Where it used to take weeks, it is now only a question of hours.

Furthermore there is just as radical a difference between the cost of transportation to-day and that of yesterday as there is in service. The economic advantages of adequate railroad transportation may be appreciated when it is considered that it costs producers of the United States an average of twenty-five cents a ton-mile to move their products from the ranch, forest, mine and farm to the railway station. This is an average cost for wagon transportation of twenty-two and one half times more per ton-mile than when producers move shipments to market by Southern Pacific.

These are good things for agents and other employes to keep in mind to point out to the man who likes to rant at railroads. Remind him of what service the rail carriers render to-day. Point out to him, for example, that the railroads carry one pair of shoees 1,025 miles for two and two fifths cents ($0.024), or 166 pairs of shoes the same distance for the price of one pair of shoes, $4.00. They carry a suit of clothes a thousand miles for six and four fifths cents. They carry a hat a thousand miles for two cents, or 100 derbies the same distance for the price of one, $2.00; one cigar a distance of a thousand miles for one forty second of a cent ($0.00023), or 210 cigars the same distance for the price of one, five cents.

The trouble with the man who rails against the railroads, in most cases, is that he doesn't realize the vital importance transportation plays in his life and what it costs to provide transportation. He accepts a railroad as he would good health—without any realization that, like his health, it must be preserved. Much hostility on the part of demagogues would be overcome could they see the railroad in actual operation as you and I and other employes do. We know its inner life. We know what a service it renders and how each one of us is striving. Many times a few judicious words of explanation—a statement of facts—may serve to place the railroad in its proper light before a misinformed individual. Here is our opportunity and we are the losers if we don't take advantage of it.

Some Railroad Expenditures.

(From the Troy, N. Y. Times.)

IT has been the custom to indulge in harsh criticism of railroad men, although of late there have been signs of a more lenient temper. In the denunciation of the railroads for shortcomings, many of which were more imaginary than real, sight was lost of the magnificent work done by the transportation companies in the public interest. Very seldom was mention made of the immense sums expended for improvements in equipment and in providing terminal facilities for passenger and freight traffic. Yet the expenditure in those directions has been enormous. The fact is recalled by information recently made public with reference to that great undertaking, the reconstructed Grand Central Terminal in New York City.

It appears that the total outlay by the New York Central and Hudson River Railroad Company in this enterprise has been $67,000,000. Counting in the ground value of the old terminal the work as completed represents an investment of $72,000,000. It has been a wonderful piece of engineering and of construction, especially when it is recalled that operations were carried on without interrupting train service at a point where the daily movement is tremendous. The interesting statement is also made that the project could not have been put through successfully but for the adoption of the electrical system of moving the cars. In a way the completed task is an impressive testimonial to the power of electricity.

There are other suggestive features of the enterprise. The figures quoted relate to the money spent for exclusively railroad purposes. The intention is ultimately to erect buildings for various uses on such portions of the terminal area as are not required for train service. There are great possibilities of commercial development. The entire space available for business and other uses is 14.2 acres, and it is believed a social and civic centre with splendid facilities may be developed there. The Wall street Journal does not regard this as an empty dream, but after a review of the situation says: "It can, perhaps, be said that the complete commercial development of the terminal area may in time consist of $50,000,000 to $60,000,000 worth of buildings. In that case the finished and utilized railroad terminal and the buildings above it would represent an aggregate investment of upward of $125,000,000." Here is a most effective demonstration of what can be done by energy and enterprise, with careful regard for meeting the demands of the traveling public.

The Grand Central Terminal, while, perhaps, the greatest, is but one of many object lessons of this general character. Magnificent passenger stations have been built within a comparatively short period at Washington, St. Louis and elsewhere, and at all important points the railroads are spending money to assure adequate facilities, and it will be seen that these transportation concerns are far from indifferent to the requirements of the time. It can do no harm for the man who travels by rail or who ships freight to ask himself occasionally how the country would get along if the railroad companies were less ready to meet the needs of transportation.

Personal

William T. Lamoure.

WILLIAM T. LAMOURE, who has recently been made general freight agent of the Boston and Maine Railroad, was born in Worcester, N. Y., and educated in the public schools of that town. He entered railroad service as telegraph operator in 1882 on the Boston, Hoosac Tunnel & Western Railroad, now part of the Boston and Maine System. In 1885 he was appointed station agent at Petersburg Junction, N. Y.; a year later transferred to Valley

W. T. LAMOURE.

GEORGE H. LEE.

Falls, N. Y., and then became agent at Johnsonville, N. Y., when the Boston, Hoosac Tunnel & Western Railroad was consolidated with the Fitchburg Railroad.

He was appointed Freight Agent of the Fitchburg Railroad at Troy, N. Y. in 1892; in 1895 was transferred to Boston as Chief Clerk of the Local Freight Office of the Fitchburg Railroad. Two years later he was appointed Local Freight Agent in charge of the Boston Freight Terminals of the Fitchburg Railroad and continued in that position after the Fitchburg was leased to the Boston and Maine System (1900) to 1907 at which time he was appointed foreign freight agent of the Boston and Maine System. From January 1, 1914, to July 1, 1915, he was assistant general freight agent, and July 1, 1915, to date, general freight agent of the Boston and Maine Railroad.

Mr. Lamoure has taken active interest in agents' Associations, having served as president of the Boston and Maine Railroad Agents' Association; president of the Railroad Agents' Association of New England, and president of the Local Freight Agents' Association of Boston. He also served on important committees in the American Association of Local Freight Agents' Associations. Member of the Traffic Club of New England and member of the Boston Chamber of Commerce.

George H. Lee.

GEORGE H. LEE, who has been appointed general passenger agent of the Lehigh Valley Railroad, is a newcomer to this system, but brings with him an enviable reputation as a passenger traffic man. Until he resigned to accept service with the Lehigh Valley he was general passenger agent of the third district of the Chicago, Rock Island and Pacific with headquarters in St. Louis.

Mr. Lee's whole railroad experience has been in the West, although he is a native of New York State, having been born in Mount Morris. He was educated at Hamilton College at Clinton, N. Y. He entered railroad service as a clerk in the auditor's office of the Arkansas Valley Route at Little Rock, Ark. His progress upward has been a steady one. He went from the accounting to the traffic department and to the passenger branch of the business. After seeing service with the Choctaw, Oklahoma and Gulf Railroad and other Western lines, Mr. Lee joined the Rock Island forces, where his ability carried him forward to the important position he has attained.

John Murray Cameron.

J. M. CAMERON, whose appointment as general superintendent of the Alberta Division of the Canadian Pacific, with headquarters at Calgary, Alta., has been announced, was born in December, 1867, and entered rail-

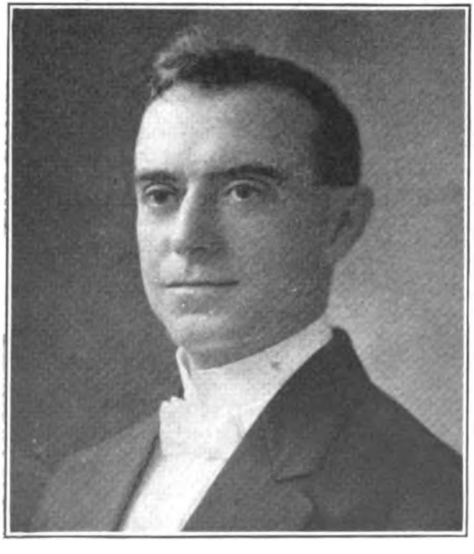
JOHN M. CAMERON.

way service in August, 1883, with the Canadian Pacific. He started as wiper and was later made pump-man. He then went into the operating department as brakeman, from which position he resigned in 1888 to go with the Northern Pacific. In 1900, he re-entered the service of the Canadian Pacific as brakeman, and was soon made conductor, and later trainmaster at Nelson, B. C. He was then appointed superintendent at Moose Jaw and Medicine Hat, and on January 1, 1915, was appointed assistant general superintendent of the B. C. Division, which position he held until his recent appointment.

George H. Winsor.

GEORGE H. WINSOR, who has recently been appointed general superintendent of the San Benito and Rio Grande Valley Railway, was born in 1870. Since boyhood he has been employed in railway service and allied industries commencing with the Atchison, Topeka and Santa Fe Railroad in the local office and subsequently performing special work in the store departments of the old K. C., F. S. & M. and the M. K. & T. railways. He was consecutively with the Burlington System at St. Louis and St. Joseph, Mo., resigning to accept a position as chief clerk with the superintendent of motive power of the Union Pacific and the St. Joseph and Grand Island railways, leaving the latter position in September, 1900, to go with the C. O. & G. Railroad at Little Rock, Ark., as traveling auditor and special investigator. From April, 1902, to March, 1903, he was assistant auditor of the Arkansas Southern at Ruston, La., and from the latter date to May, 1904, chief clerk of the St. L., M. & S. E. and the St. L. & G. Railroad at Cape Girardeau, Mo. Upon the consolidation of these roads with the Frisco System he was made chief clerk and auditor of disbursements and afterwards statistician to the president of that company, leaving there in August, 1906, to go with the Ferguson Contracting Company of New York as assistant to the president and auditor and treasurer

On the failure of that firm in 1911, re-entered the service of the Frisco Lines as chief clerk of the Accounting Department at Houston, Texas, leaving there in February, 1912, to accept the position of auditor, general freight and passenger agent of the San Antonio, Uvalde and Gulf Railroad at San Antonio, from which road he went to the S. B. & R. G. V. Railway as auditor and traffic manager. In August, 1914, the position of secretary was added and on July 1, 1915, in addition to his other duties he was made general superintendent.



G. H. WINSOR.

Osmer C. Hill.

OSMER C. HILL, who has been appointed general superintendent of the Kansas City Terminal Railway with headquarters at Kansas City, Mo., was born on May 7, 1873, at Hiram, Ohio. He was educated in the public schools and the academy at Hiawatha, Kan., and went one year to Washburn College at Topeka, Kan., and one year to the State University at Lawrence, Kan. He entered railway service on April 5, 1895, with the Chicago, Burlington and Quincy at Hannibal, Mo., and worked as brakeman until 1900 when he was made conductor. In 1903 he was made conductor and brakeman for the Wabash at Moberly, Mo., and in 1904 he was brakeman for the El Paso and North Eastern at El Paso, Texas. In the latter part of 1904 he returned to the Chicago, Burlington and Quincy and worked as switch foreman at North St. Louis, Mo., until 1906, when he went with the Missouri, Kansas and Texas as conductor and brakeman at Parsons, Kan. In 1907 he again returned to the Chicago, Burlington and Quincy, this time as night yardmaster at St. Louis, Mo., and was subsequently general yardmaster at St. Joseph, Mo., from September, 1910, to January, 1913; general yardmaster at Kansas City, Mo., from January, 1913, to September, 1913; general yardmaster at Galesburg, Ill., from September, 1913, to January, 1915, and assistant superintendent at Kansas City, Mo., from January, 1914, to July, 1915, from which position he is now promoted.

O. C. HILL.

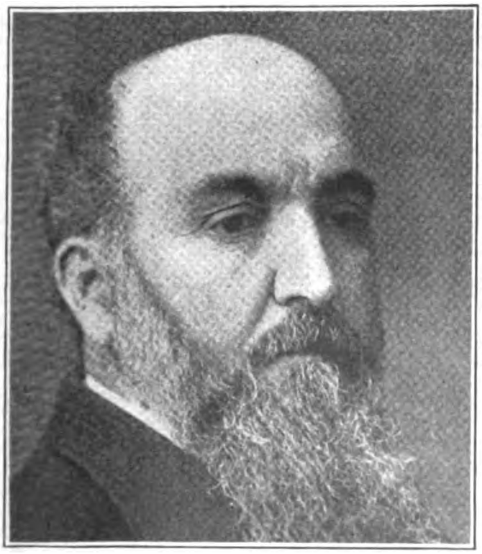
Obituary

Dr. W. H. Stennett.

DR. W. H. STENNETT, who for nearly fifteen years has been auditor of expenditures of the Chicago, St. Paul, Minneapolis and Omaha Railway, died in Chicago on July 22nd. He was born in the Province of Ontario, Canada, in the year 1832. He came to the United States when seventeen years of age and worked in a drug store at Rock Island, Ill. He was an omnifarious reader, and spent all his spare time reading such books as he could procure. He thus, early in his career, posted himself on medical and chemical matters. His next position was with a large chemical manufacturing company, where he had charge of the manufacture of certain of their products. About this time he determined to become a physician, and posted himself by reading medical and surgical books. He graduated from the Medical College of Missouri at St. Louis in 1859. After graduating he commenced the practice of medicine at Bloomington, Ill., in partnership with Dr. McCann Dunn. At Bloomington he met and married Miss Clara Hughitt. Two children were born of this union; a son, Amos H., who died in infancy, and a daughter, Grace H., now Mrs. George M. Davidson, of Oak Park, Ill.

In 1867 he gave up the practice of medicine and accepted the position of general agent of the Illinois Central Railroad Company at St. Louis. He left the service of the Illinois Central Railroad Company in 1873, and entered the employ of the Chicago & North Western Railway Company as general passenger agent. He held this position until 1884, when he was appointed assistant to the general manager of the Chicago & North Western Railway Company, which position he occupied until 1887, when he was appointed auditor of expenditures of the Chicago & North Western Railway Company, holding this position until his death.

In 1896 he was also appointed auditor of expenditures of the Chicago, St. Paul, Minneapolis & Omaha Railway Company, which position he also held until his death.



Dr. W. H. Stennett.

Dr. Stennett was a great lover of flowers and good books. During the growing season he spent most of his daylight hours, when away from the office, among the flowers in his garden at Oak Park, Illinois. He grew almost every variety of flowers that could be grown in that locality. His evenings were nearly always spent at home among his books.

He had several large groups of friends. One of these groups comprised doctors and others interested in medicine. Another group comprised railroad officials. Another, literary people, among whom he had a large acquaintance. Another, horticulturists and agriculturists, with whom he carried on an extensive correspondence.

He had the faculty of remembering nearly everything that he read, and as his reading was not confined to any one line, he was posted on nearly every subject. It was difficult for anybody to start a conversation with him on any subject without soon realizing that he was well informed.

While he was general passenger agent of the Chicago & North Western Railway Company, his duties required that he travel a great deal. In his later years he preferred to remain at home. During the last twenty-five years of his life, while working for the Chicago & North Western Railway Company he did not take a vacation, nor during that time did he spend one single night away from his home.

G. Aldrich, supervisor of bridges and buildings of the New York, New Haven & Hartford, with headquarters at Boston, Mass., died on July 9th, after an operation for cancer of the stomach.

Carlos E. Bartlett, traveling passenger agent of the New York, Chicago & St. Louis Railroad, with headquarters in Buffalo, N. Y., died July 20th, following an operation for appendicitis.

Arthur Brown, who was division superintendent of the Maine Central Railroad, previous to 1875, and from 1876 was superintendent of the Bangor & Piscataquis Railroad, until that road was taken over by the Bangor & Aroostook Railroad, in 1892, when he retired from railway work, died on July 19th, at his home in Bangor, Maine, at the age of 95.

Theophilus P. Brown, formerly, from 1883 to 1885, president of the Toledo & Indianapolis, and later president and general manager of its successor, the Toledo, Columbus & Southern, now a part of the Toledo & Ohio Central Railway, died recently in Toledo, Ohio, at the age of 80.

J. Frank Chapman, manager and purchasing agent of the Thousand Islands Railway and the Oshawa Railway, with headquarters at Gananoque, Ont., died at his home in that place July 19th.

Sir Sanford Fleming, civil engineer, scientist and a former railway builder, died on July 22nd, at Halifax, N. S., at the age of 88. He was born in Scotland and went to Canada in 1848. Four years later he became an engineer on the Ontario, Simcoe & Huron, now a part of the Grand Trunk, and when the construction work on this line was finished he was appointed chief engineer, remaining in that position for eleven years. In 1863 he was appointed to make a survey of the line connecting the maritime with the upper provinces of Canada and later was in charge of the construction of this line which was opened in July, 1876, and was known as the Intercolonial. He advocated the construction of a line to the Pacific coast and from 1871 until 1880, was engineer in chief to carry out the surveys on lines which now form a part of the Canadian Pacific, and he also planned and built the railway across the Island of Newfoundland. He spent the latter years of his life in literary pursuits and scientific research, and was the author of a number of books on scientific subjects.

Chester Lee French, superintendent of the Baltimore & Ohio Railroad, with headquarters at Cumberland, Md., died July 17th, at Atlantic City, N. J., aged 48 years. Mr. French had been ill for several months.

M. J. Healy, until recently general manager of the Estacado, Gulf & Western at Midland, Tex., died on July 27th, at Muscatine, Iowa. For the past 20 years Mr. Healy had been promoting railroads in Texas and other states, and at the time of his death was promoting the Chicago, Western Illinois & Iowa, from Arpee, Ill., to Chillicothe.

Charles H. Kipple, general superintendent of the Altoona, Juniata & Northern Railroad, died at his home in Altoona, Pa., on July 28th.

M. D. Monserrate, second vice-president of the San Antonio & Aransas Pass, with headquarters at San Antonio, Texas, died at San Diego, Cal., on July 30th, at the age of 78 years.

J. J. Moran, formerly master mechanic of the Houston & Texas Central at Ennis, Texas, died on July 29th, at Marlow, Okla., at the age of 66 years.

Frank Roberts, president of the Valdosta Moultrie & Western Railroad, died on July 15th, at Valdosta, Ga.

John Hasbrouck Scoville, a director of the Detroit, Toledo & Ironton, and a member of the stock exchange firm of Maxwell & Scoville, New York, died at his summer home at North Andover, Mass., on July 25th, at the age of 72.

R. H. Shoemaker, formerly general freight agent of the Dayton & Michigan, now a part of the Cincinnati, Hamilton & Dayton, died at his home in Saratoga Springs, N. Y., on July 28th. Mr. Shoemaker was at one time superintendent of the Dayton Short Line, now a part of the Cleveland, Cincinnati, Chicago & St. Louis, and later vice-president of the St. Louis Bridge & Transfer Company.

E. E. Smythe, former traffic manager of the Missouri & North Arkansas Railroad, died in Kansas City, Mo., last week of injuries received in an automobile accident on May 5th.

C. E. Spagnoletti, formerly and for 37 years superintendent of telegraph of the Great Western Railway of England, died on June 28th, at the age of 83. Mr. Spagnoletti was inventor of numerous useful devices in telegraphy and railway signalling. He was consulting electrical engineer for the construction of the City & South London Railway, and was president of the Institution of Electrical Engineers (England) in 1885.

Dr. W. H. Stennett, auditor of expenditures of the Chicago & North Western and Chicago, St. Paul, Minneapolis & Omaha railways, at Chicago, Ill., died after a brief illness at his residence, in Oak Park, Ill., July 22nd.

Judge Henry L. Waldo, formerly solicitor for New Mexico, for the Atchison, Topeka & Santa Fe Railway, died recently in Kansas City, Mo.

James W. Weaver, secretary and treasurer of the Ironton Railroad, after about a year's illness, died July 8th, at his home in Easton, Pa., at the age of 62 years. Mr. Weaver was also secretary and treasurer of the Thomas Iron Company.

The Railway Mail Pay Problem in its Present Aspect

NOTE: While the railways were able to temporarily defeat the Moon bill in the last Congress, it is the declared intention of the Postmaster General to again push this matter in the new Congress and to have some law placed upon the statute books which will not only give him arbitrary power in compelling the railways to carry the mails without proper compensation, but which would also embrace a method of payment according to space rates, a system which has been declared unscientific and improper by all impartial committees who have investigated the subject. The following paragraphs which have been taken from a statement presented to the chief executives of the railroads by the Committee on Railway Mail Pay, gives some idea of the situation which the railroads are now facing. It should be the effort of railway officials generally to bring these matters to the attention of the general public, so that they may fully understand the nature of the unfair legislation which the Postmaster General isattempting to force upon the carriers.

SINCE the basic law at present governing the compensation of the railroads for carrying the mails was passed, in 1873, the rates of pay have been four times reduced—three times by act of Congress and once by an executive order of the Postmaster General, which is now in litigation before the Supreme Court of the United States, in the "divisor case." The divisor order, alone, has deprived the railroads of more than $35,000,000 since its application in 1907.

In consequence of these successive reductions, the present scale of rates applicable to mail routes of various densities of traffic is about 30 per cent lower than the rate scale established by the basic law. A much greater reduction in the rates of pay has been effected automatically by the principle embodied in the law of 1873, which entitles the Post Office Department to a lower rate per ton-mile, as the average daily weight of mail increases.

The combined effect of the cuts in rate scales and the increasing density of the traffic has been to reduce the average rate received for hauling a ton of mail one mile from more than 26 cents, in 1873, to less than 10 cents at the present time.

Considering the extraordinary character of the railway mail service, utilizing, as it does, every fast passenger train, as well as special trains, and considering, also, the numerous supplementary facilities and incidental services which the railroads are obliged to render the Post Office Department, railroad managers entertain no doubt that the present average scale of compensation is decidedly inadequate.

What Disinterested Inquiries Have Shown.

This opinion is sustained by the decision of the Joint Congressional Committee, which, in its report of August 31, 1914, recommended a substantial increase in compensation to the railroads, and relief of the more burdensome of the incidental services.

Further important support to the contention of under-payment is afforded by the report of Mr. Louis D. Brandeis to the Interstate Commerce Commission, while acting as the Commission's special counsel in the Advance Freight Rate Case. Mr. Brandeis, in May, 1914, announced to the Commission:

"It seems clear that the railway mail service is at present unremunerative to the carriers."

In 1913, Dr. M. O. Lorenz, associate statistician of the Interstate Commerce Commission, calculated that the railroads had been underpaid certainly more than $5,000,000 per year for carrying the mails, even before the establishment of the parcel post, which has since greatly increased the underpayment.

The Wolcott-Loud Congressional Commission, in 1901, reached the following conclusion:

"We are of the opinion that the prices now paid to the railroad companies for the transportation of the mails are not excessive, and recommend that no reduction thereof be made."

These investigations and reports, above enumerated, are the only ones that have been made by disinterested authorities in the last 15 years. It will be noted that in three instances the railroads were held to be underpaid, and in the other instance (the Wolcott-Loud report of 14 years ago) at least not overpaid.

Notwithstanding the definite recommendation of the Wolcott-Loud Commission, in 1901, against reduction of the rates, Congress, in 1907, without investigation, reduced the rates by law, and in the same year the Postmaster General made another reduction by the "divisor order," previously referred to.

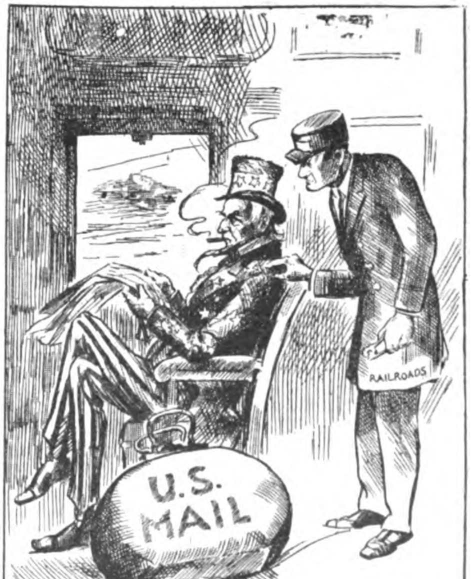
Half the Parcel Post Now Carried Without Pay.

The establishment of the parcel post, on January 1, 1913, introduced a new element into the situation. Owing to lack of adequate provisions for paying the railroads for the large amount of additional service which the parcel post has entailed, the railroads are to-day, at the close of the fiscal year 1914-15, nearly two and one-half years after the establishment of the service, transporting without compensation fully 50 per cent of the traffic, estimated by the Postmaster General to have exceeded a total of 800,000,000 packages in the last fiscal year.

When the parcel post service was inaugurated, no provision of any character had been made to pay the railroads for the new traffic. In consequence, the railroads carried the entire parcel post for the first six months without one cent of remuneration.

Beginning with July 1, 1913, the railroads in the States of New York, New Jersey, Pennsylvania, Delaware, Maryland, West Virginia and Virginia received an adjustment of pay based on a weighing of the mails conducted during the preceding spring, when the parcel post was in its infancy and the original weight limit of 11 pounds per parcel, established by Congress, was still in force.

Effective from the same date, railroads in all of the other sections of the country were given certain arbitrary allowances which the Postmaster General had been authorized to award, in his personal discretion. In no case were these allowances to exceed a five per cent increase in the annual mail pay of any railroad. The allowances, as actually awarded, averaged from three to four per cent.



TICKET!

—from *Financial America.*

Expansion in Scope of Parcel Post.

On August 15, 1913, six weeks after these adjustments of pay had been made, the Postmaster General increased the weight limit per parcel post package from 11 pounds to 20 pounds in the local, first and second zones, and reduced the rates of postage. On January 1, 1914, the Postmaster General extended the 20-pound weight limit to all zones and increased the limit in the local, first and second zones to 50 pounds. At the same time, another reduction in postage rates was made. On March 16, 1914, books and catalogues were admitted to the parcel post, with the result that an immense traffic has been created. How great this is may be judged by the fact that the Congressional committee appointed to investigate the parcel post, headed by Senator Bristow, of Kansas, reported that a single mail order house is saving $1,000,000 per year through shipping its catalogues via the parcel post.

Increased Traffic Not Paid For.

For all the additional traffic which has been created by the extension of the parcel post beyond the original limits established by Congress, no compensation whatever has yet been paid to any railroads save those in the far Western States, which, commencing July 1, 1914, after a delay of a year and a half, received an increase in pay to correspond with the results of a weighing of the mails on their lines conducted during the spring of 1914.

These are the only railroads in the United States which are now (June, 1915) being paid for the parcel post with any approximate degree of justice, yet even they are carrying a year's increase without compensation.

The railroads in New York, New Jersey, Pennsylvania, Delaware, Maryland, West Virginia and Virginia, which carry the heaviest mail traffic in the country, are still being paid for the weight of parcel post carried a few weeks after the service was inaugurated, before the public had become accustomed to its use and while the 11-pound weight limit was in force.

The railroads in New England and the Central West, where population is dense and mail traffic heavy, and in all the Southern States lying east of the Mississippi, have not as yet received any readjustment of pay, based upon actual weighing, since the establishment of the parcel post, two and one half years ago. These railroads are still carrying the parcel post without payment except for the arbitrary allowances of three to four per cent previously referred to.*

Whatever claim may be advanced as to the adequacy of these allowances, as gauged by the volume of parcel post carried during the first seven and one half months of its existence, while the limitations fixed by Congress still remained undisturbed, they are certainly most inadequate when applied to the greatly expanded parcel post, as it exists to-day, with nearly two and one half years' growth in the traffic.

Facts of Underpayment Summarized.

To sum up the parcel post situation existing at the date of issue of this statement, and throughout the entire fiscal year ending June 30, 1915:

1. In about half of the country there has been no readjustment of railway mail pay, based upon actual weighings, since the establishment of the parcel post service.
2. In about three quarters of the country, including the portions where mail traffic is heaviest, there has been no compensation whatever to any railroad for the *additional traffic* created by the great expansion in the scope of the parcel post beyond the limits originally set by Congress, as to weights and rates of postage.
3. The increase in the parcel post, according to the Postmaster General's own figures, has been and still is very rapid, the traffic having reached in two years' time, a volume of probably 1,000,000,000 packages annually, while the mails are weighed and the pay of the railroads readjusted only at four-year intervals.

Taking a broad view of this situation, the Committee on Railway Mail Pay is of the opinion that the estimate that at least 50 per cent of the parcel post has been carried by the railroads, throughout the current fiscal year, without payment, is very conservative.

Graver Situation Possible Under Moon Bill.

Serious as the present situation is with respect to the underpayment for the parcel post, it is the conviction of the Committee on Railway Mail Pay that, should the efforts to obtain enactment of the Moon bill meet with success in the new Congress, conditions even more serious would arise.

Passage of the Moon bill would place in the hands of the Postmaster General, who, as far as the railroads are concerned, is the shipper, the power of restricting, to any extent that he might see fit, the compensation to be paid the railroads for carrying the mails, and especially the parcel post. It would also create a system of rates so constructed as to permit a very large further expansion of the parcel post without payment, by the Post Office Department, for the additional service the railroads would be obliged to render.

While the Moon bill would no doubt provide a means by which the deficit incurred in the operations of the Post Office Department could be reduced, it is obvious that this could only be accomplished at the expense of the railroads, by adding very greatly to the grievous burdens which have already been placed upon them through the present non-payment for 50 per cent or more of the parcel post.

Chairman Moon gave a clear characterization of the bill when he informed the House of Representatives, in debate, on December 19, 1914, that under this measure it would be possible to require the railroads *"to carry all your parcel post probably without any additional compensation and save many millions annually."*

How the Moon Bill Would Operate

The Moon bill would have accomplished its results in two ways:

First, by establishing the "space plan" of payment, under which the compensation for the railway mail service would be based primarily, not upon the weight of mail carried, but upon the amount of car space *authorized* by the Department for use in the service; such space to be paid for at car-mile rates representing much less than the earning power of the space, but with full liberty to the Department to utilize the maximum carrying capacity of the space so authorized. This would give the Department complete control of the facilities of the railroads, and, necessarily, if the compensation for the space was inadequate for the weight of mail transported—that is, for the actual service performed—partial confiscation of the facilities of the railroads would be accomplished.

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* Beginning with July 1, 1915, the railroads in the Central West will be entitled to pay on the basis of a weighing of the mails which was conducted in their territory during the spring of the current year (1915).

Secondly, by making the rates to be paid for the authorized space discretionary with the Postmaster General. The bill named certain rates and authorized the Postmaster General to pay "not exceeding" those rates. This would permit the Postmaster General to reduce the rates at will.

DISCRETIONARY FEATURES OF THE MOON BILL.

The Moon bill would also confer upon the Postmaster General other discretionary powers of an arbitrary character which, from the railroad point of view, can only be regarded as most improper, *when coupled with a penal provision making the service compulsory.*

The Postmaster General would be authorized to require the railroads to furnish mail cars and apartments of any design or construction that he might specify, regardless of cost or of the financial ability of various companies to comply. The railroads would have no assurance as to the length of time such cars would be used and paid for. On the contrary, the Postmaster General, under the terms of the Moon bill, could cancel the authorizations at will, even after specially constructed cars had been supplied.

The Postmaster General would be empowered to require the railroads to furnish such station space and rooms at terminals, rent free, as he might specify; to place mail cars in stations, prior to the departure of trains, for the advance distribution of mail, whenever desired; and to perform, or not to perform, without compensation, under his personal discretion, the services usually designated as "side, terminal and transfer services."

The Moon bill would compel the railroads to give free transportation to all officers and employes of the Post Office Department, not only while on duty in connection with railway mail service, and while going to and from such duty, as at present, but also whenever traveling on Departmental business of any character, upon exhibition of their credentials. No such privilege is enjoyed by officers or employes of any other department of the National Government

SUPPLEMENTARY PROVISIONS OF THE MOON BILL.

In addition to the very wide liberty of action which the Moon bill would confer upon the Postmaster General, in the administration of the system of compensation which it purported to establish in the main body of the bill, the measure contained several additional sections, conferring further broad grants of power, under which the Postmaster General, at his option, could set up wholly different plans of payment for considerable portions of the service.

For instance, the Moon bill provided that the Postmaster General might, from time to time, obtain information from the Interstate Commerce Commission regarding the revenues received by railroad companies from express matter and arrange for the transportation of second-, third- and fouth-class matter at "not exceeding" such rates.

This provision is vague in that it does not specify on what basis the express revenue should be ascertained. It may be pointed out, however, that the express companies pay the railroads about 50 per cent of their gross revenues for the transportation of their traffic, while the Post Office Department is at present paying the railroads only about 19 per cent of its gross receipts.

Of similar character is another section providing that the Postmaster General might petition the Interstate Commerce Commission for postal carload or less-than-carload rates for fourth class matter and periodicals, and then require the railroads to carry the traffic at such rates, on any passenger train and under any conditions named by the Postmaster General.

If these provisions offered practicable means of establishing correct transportation rates for second-, third- and fourth-class mail matter, there would be no mail, except the letter mail (first-class matter), that would be carried on the space basis of pay prescribed in the Moon bill, and this would only be about 10 per cent of the whole mail traffic.

SERVICE COMPULSORY UNDER MOON BILL.

The feature of the bill making the service compulsory, under penalty of a prohibitive fine for refusal, is a most important departure. The present law contains no provision forcing the railroads to carry the mails, under specific penalty.

It has been contended, on behalf of the Post Office Department, that the Moon bill in using the words "not exceeding," as applied to its scale of rates, merely follows the wording of the present law, which authorizes the Postmaster General to pay "not exceeding" certain rates. In making this claim, however, the important fact is lost sight of that the present law merely authorizes the Postmaster General to *negotiate* with the railroads for the performance of the service and places a limit upon the amount he may offer to pay, whereas the Moon bill would *compel* the railroads to render such service as the Postmaster General might demand, at such rates as he might choose to allow, or pay a fine of $5,000 per day for each refusal so to do.

ONE CENT PER TON PER MILE FOR PARCEL POST.

The rates named in the Moon bill, if allowed in full by the Postmaster General, would give a gross return of about 20 cents per mile for the movement of a 60-foot storage car. As such a car could be loaded with 20 tons of mail, it will be seen that, even at the maximum payments permitted by the Moon bill, the Post Office Department would be placed in possession of machinery whereby it could compel the railroads to carry the parcel post for one cent per ton per mile. Such service would be rendered by the fastest passenger trains or by special mail trains, and it is needless to say that the Post Office Department could establish postage rates for the parcel post which would be below the cost of transportation and with which neither the express nor lighter freight services could possibly compete.

It would, of course, be possible to ship full carloads of parcel post upon the heavier mail routes, only; but approximately the same rate of one cent per ton per mile would be available for the Department, on lighter routes, by the authorization of 30-foot or 15-foot apartments, for which the Moon bill provides, or by the authorization of storage space of any size in baggage cars, which is permitted by another provision of the Moon bill.

No railroad can afford to carry freight, in fast passenger trains, at a rate of one cent per ton per mile, nor would it be just to require any railroad to do so.

It has been the contention of those who have advocated a Governmental postal freight service, to carry heavy packages at extremely low postage rates, that the benefits of such a service would be very widespread and would be of special value to such shippers as small merchants and farmers. The recent report of Senator Bristow's Parcel Post Committee, however, cast serious doubt upon this claim. The Bristow report states that about 60 per cent of all fourth-class matter originates in New York and Chicago, and remarks:

"The tremendous amount of merchandise sent out by the mail order houses of these cities is, of course, the explanation of this condition."

Entirely aside from the question what class of citizens may or may not be benefited by an expanded parcel post, or postal freight service, conducted at such postage rates as to make it a subsidy to the shipper, it cannot be contended, with fairness, that the cost of the subsidy should be borne by the railroads. Yet the legislation favored by the Post Office Department would make it possible to shift the principal burden of such subsidy from the Government to the railroad companies.

SPACE PLAN DISREGARDS BASIC RATE PRINCIPLE.

The passage of the Moon bill, or of any other bill recognizing car space as the controlling factor in determining the rates to be paid for mail transportation service, might serve as a precedent entailing the possibility of grave and far-reaching consequences.

It is obvious that the establishment of the space plan for the railway mail service would mean the overthrow, as far as that service is concerned, of the universally recognized and entirely sound principle that the commercial value of the service to the shipper is properly one of the factors to be considered in determining a rate. If this principle is disregarded in the mail service, there would appear to be no reason why it could not, with equal propriety, be disregarded in other branches of the transportation service, thus imperiling the present structure of freight rates.

If the railroads can be compelled to grant to a number of shippers, acting collectively through the Post Office Department, the right to ship on the space plan of payment, there seems to be no good reason why one of the large corporate shippers—a great manufacturing company, for instance—should not claim an equal privilege.

The space plan of payment, applied to the business of such a shipper, would mean that the manufacturing company would pay the railroads about the *average* car-mile earnings of a freight car, for as many cars as it could use, but would have the right to load every car to *full capacity* without additional payment for the excess of weight over the average load. Such a system of payment would deprive the railroads of compensation for service actually rendered, and, if applied to the general freight service, would seriously impair the financial stability of many companies.

FLEXIBILITY OF SPACE PLAN NOT RECIPROCAL.

The Post Office Department has put forth the claim that the Moon bill, by reason of the space plan of rates, would automatically readjust the pay of the railroads to correspond with the changes in facilities authorized by the Department, thereby meeting the objections of the railroads to the system of "quadrennial weighings," and also providing means whereby additional service required at such times as Christmas could be officially authorized and paid for.

It is the opinion of those who have studied the subject most carefully that whatever measure of justice might be accorded, in this respect, would be negligible by comparison with the injustice in other directions which would follow adoption of the Moon bill, or the space plan of payment.

It is true that the space plan would afford means whereby extra cars required to handle the Christmas business could be authorized and paid for, but it is also true that during the slack seasons the authorizations of space could be reduced, and the railroads would then be required, in many cases, to haul empty space without compensation. There is no manner in which a 60-foot mail car can be temporarily rebuilt to a 30-foot apartment, or a 30-foot apartment cut down to one of 15 feet, to correspond with a temporary reduction in authorization on any given route. The full car or large apartment would have to be provided and hauled, while only half the space might be paid for.

SOME IMPORTANT DISTINCTIONS AS TO CAR SPACE.

It is important to note, in this connection, that car space *authorized*, car space *used* and the car space that, as a matter of practical necessity, the railroads may be compelled to *furnish*, are three very different things, and it is *space authorized* that the Post Office Department proposes to pay for.

The weight plan of payment, if properly administered, would include compensation to the railroads for the extra service furnished during the rush periods. The weight for which payment is made, on any route, is supposed to be the average daily weight carried on that route during the entire year, including the service rendered in rush periods. If the weights were ascertained with sufficient frequency, and for representative periods of the year, compensation for such extra service would be given.

The space plan of payment for the railway mail service, notwithstanding the defects which analysis reveals, has appeared attractive to the minds of some influential members of Congress, partly, no doubt, on account of its seeming simplicity.

It presumably appeals to the Post Office Department because it would provide a means whereby the *expanded* parcel post could be successfully operated in commercial competition with the freight and express service. Such competition, except at a heavy loss to the Government, could only be carried on at the direct expense of the railroads, but, nevertheless, the Department seems, thus far, committed to that course, despite the fact that it would retain the weight basis in making its rates of postage to the public.

GOVERNMENTAL COMPETITION VS. REGULATION.

Ordinarily, in considering any question of rates, the only proper concern of the railroads, as common carriers, is to obtain fair and just payment for the service they are called upon to perform. This is the attitude which railroad managers have always hitherto maintained toward the parcel post, and which they are endeavoring to continue to maintain, despite certain further considerations that are being forced upon their attention.

How is it possible, for instance, to ignore the fact that, whereas, the parcel post, as originally established by Congress, with a weight limit of 11 pounds, was a supplementary service, filling in a gap which previously existed between the old fourth-class mail and the express service, the subsequent extension of the weight limit to 50 pounds has brought the parcel post into active competition not only with express, but also with freight?

It is well to consider how and by what means the Government is able to compete with the railroads for commercial transportation business. The Government owns no transportation facilities, whatever, in the continental United States. When it enters the freight and express business, having no facilities of its own, it must commandeer the use of the facilities of the railroads. But the railroads are already using those facilities in giving service to the public, directly or through the express companies. Moreover, the rates which the railroads obtain for the service cannot be higher than the Interstate Commerce Commission pronounces to be reasonable. The Government can underbid the railroads for such service only by using its sovereign power in compelling them to employ their facilities in rendering service to the Government *at rates lower than those declared reasonable*. Thus the Government would be forcing the railroads to use their facilities against themselves, and in competition with that service which they are rendering to the public under the protection and regulative authority of the Government.

Is Governmental competition consistent with Governmental regulation?

WHAT DOES PUBLIC SENTIMENT FAVOR?

Certain other questions naturally suggest themselves. For example, has there been any evidence of a popular demand for the Post Office Department to enter into commercial competition with the railroads, or to convert the mails from a medium for the diffusion of intelligence, and the incidental carrying of small parcels, into a general freight and express agency?

Is it not rather the case that public sentiment would look with more favor upon steps which would enhance the quality of the mail service proper, i. e., the prompt and accurate dispatch of correspondence, newspapers and periodicals, and leave the development of freight and express traffic to the agencies especially created to handle it and to the regulative authority of the Governmental body especially appointed to control it?

In Great Britain, where the parcel post was established years before its inauguration in this country, it has never been thought necessary to go beyond the international weight limit of 11 pounds.

If the Post Office Department's plans, as generally understood, are carried out, it seems probable that the weight limit for the parcel post in this country will be further expanded to 100 pounds, or more, causing increased losses to the railroad companies in revenue, and loading upon the passenger train service heavy postal freight, with resultant delays to trains.

WHAT THE JOINT CONGRESSIONAL COMMITTEE HELD.

The report of the Joint Congressional Committee on Railway Mail Pay, submitted last August, as has been stated, unanimously sustained the chief contentions of the railroads, which were:

That the present total compensation for carrying the mails is inadequate;

That the system of "quadrennial weighings" of the mail is unfair and unbusinesslike;

That apartment post office cars should be paid for on the same pro rata basis as the full cars;

That the railroads should be relieved of, or paid for, the messenger services performed in carrying the mails between railroad stations and post offices, and between railroad stations on different lines.

The Joint Committee also reached the following most important conclusions:

That the railroads are entitled to be paid for mail transportation on a commercial basis;

That the mail service, being performed by passenger trains, should return as much, per car-mile, as the general average of the passenger train service;

That the mail service, per car-mile, yields a lower return and costs more to perform than the express service;

That Government ownership of mail cars would be objectionable on the ground of public policy and would cost the Government more than operation under railroad ownership.

The Joint Congressional Committee's conclusions of fact being unanimous, and having been reached only after the most careful study and consideration, should meet with general acceptance.

MAIL AND EXPRESS EARNINGS OF THE RAILROADS

The Joint Committee's conclusions are of particular importance in view of the Post Office Department's contention that the railroads are better paid for carrying the mails than for handling the traffic of the express companies. The argument by which the Department has sought to sustain this position rests upon the citation of some two score of specific shipments.

The instances cited, however, were far from being representative, for two vital reasons: (1) In every case the railroads' share of the very lowest wholesale express rate, that for a single 100-pound package, was compared with the average mail earnings. (2) The hauls, in the instances cited by the Department, averaged 1,600 miles each, whereas the Interstate Commerce Commission has found that the average express haul is only about 200 miles and the average weight per package about 33 pounds. Business fairly representative of average conditions will show a higher net return per pound from the express than from the mail service.

The Joint Congressional Committee considered the mail and express services *as a whole,* and reached the conclusion that the mail is the less remunerative. This is the latest and most authoritative decision upon the question, by a disinterested body.

Moreover, the Committee pointed out that the mail and express services, as performed by the railroads, instead of being essentially similar, differ greatly in important respects, so that a consideration of rates, without, also, a consideration of the nature of the services rendered, does not afford a reliable basis of comparison.

THE RIGHT TO A COMMERCIAL PROFIT FROM MAIL TRAFFIC.

The Joint Congressional Committee's affirmation of the principle that the railroads are justly entitled to a fair commercial rate from the service of transporting the mails is also a conclusion of primary importance. In the course of the hearings before the Joint Congressional Committee, the representatives of the Post Office Department advanced the theory that in transporting the mails the railroads were performing a Governmental function, and that for this reason the railroads might be required to carry the mails at rates materially below the commercial value of the service.

The Joint Congressional Committee rejected this contention and said:

"Fair rates should be made in all branches of traffic, otherwise a deficiency of return from one branch must be made up by an overcharge from another branch. * * * *

"The desirability of diffusing intelligence may well be taken into account in fixing the postage rates to be paid by the public, but it is not clear that this has any connection with what the Government should pay the railroads.

"Do we ask a mail clerk to work for less than a normal salary because he handles letters? Does the manufacturer of desks make a special price to the Post Office Department because the mail service helps to diffuse intelligence? Then why should the railroad, which is merely another instrumentality used by the Government in its mail business, sell its services at an abnormally low rate if the Government is able to pay the normal rate."

Equally significant is the principle laid down by the Interstate Commerce Commission in the Advance Freight Rate Case decision of July 29, 1914: "In our opinion each branch of the service should contribute its proper share of the cost of operation and of return upon the property devoted to the use of the public."

THE JOINT CONGRESSIONAL COMMITTEE'S BILL.

The bill recommended by the Joint Committee is mainly free from the objectionable discretionary features found in the Moon bill, but its scale of rates is only slightly higher than the rates in Chairman Moon's measure. Moreover, the same facility would be afforded the Post Office Department for effecting shipments of the parcel post at most unremunerative rates (approximately one cent per ton per mile), and it is herein that there is the greatest possibility of injustice to the railroads from the space basis of pay.

While the Joint Committee bill would no doubt be decidedly preferable to the Moon bill, it is not a measure that the railroads can consistently advocate. Although the Joint Committee believed that the provisions of the bill would increase the pay of the railroads by some $3,000,000 per year, with relief from the messenger services, representing some $2,000,000 more, the space plan of payment necessarily allows of so much latitude in administration that it would be feasible for the Post Office Department, under the terms even of this measure, to reduce in considerable degree the compensation for the service now rendered, as well as make possible a large expansion in parcel post freight with little or no corresponding increase in pay.

REFERENCE TO INTERSTATE COMMERCE COMMISSION.

It is the opinion of the Committee on Railway Mail Pay that the ultimate solution of the railway mail pay problem lies in reference of the matter to the Interstate Commerce Commission, with complete power. This would take the question out of politics, which would be in the highest degree advisable. The problem is not political, but economic. Reference to the Interstate Commerce Commission would round out, and make complete, as far as interstate traffic is concerned, the regulative authority of the Commission, and so give full opportunity for testing out the system of public regulation of railroads which this nation has adopted.

Besides, the development of the parcel post as a commercial service, competitive with freight and express, makes it fitting that the same authority which regulates freight and express rates and traffic should exercise a like supervision in the case of the mail traffic.

It is the belief of the Committee on Railway Mail Pay that the railroads will have the support of the public in favoring such a step, and that the American people will consider the willingness of the railroads to abide by the judgment of the Interstate Commerce Commission as an evidence of good faith.

The Failure of Government Ownership of Railroads

By F. G. R. GORDON.

NOTE.—The following paragraphs are a continuation of an article the first part of which appeared in the July issue of the RAILWAY WORLD. This article was recently published by the National Civic Federation with a number of others by prominent men on the subject of "Shall the Government Own and Operate the Railroads, the Telegraph and Telephone Systems?"

Railway Ownership.

GOVERNMENT ownership advocates would have the people believe that a few millionaires own the American railways. But the one big fact in connection with railway ownership in this country is that there has been a remarkable distribution of railway stocks and bonds during the past twenty years.

The following table shows how the number of shareholders in some of the principal roads has increased since the Interstate Commerce Commission reported that there were 327,785 shareholders in 1,182 roads in 1904:

	Shareholders	
Name of Company	1904	1912
Pennsylvania	44,175	74,002
Atchison, Topeka & Santa Fe	17,823	31,738
New York Central & Hudson River	11,781	22,247
New York, New Haven & Hartford	10,842	21,948
Union Pacific	14,256	21,600
Great Northern	383	17,841
Southern Pacific	2,424	14,387
Northern Pacific	368	13,987
Chicago, Milwaukee & St. Paul	5,832	11,819
Baltimore & Ohio	7,132	11,414
Illinois Central	9,123	9,987
Erie	4,309	7,847
Chicago & Northwestern	4,109	8,564
Boston & Maine	7,402	8,105
Norfolk & Western	2,911	5,323
Denver & Rio Grande	2,910	4,928
Missouri Pacific	1,861	4,382
Chesapeake & Ohio	1,478	4,138
Louisville & Nashville	1,672	3,318
Total	149,791	297,575
Increase per cent.		98.7

Since 1912 the number of owners has largely increased.

In addition to this, 20 per cent. of the savings bank deposits of the six states of New York, New Jersey, New Hampshire, Massachusetts, Connecticut and Maine are invested in railway securities. Mr. H. T. Newcomb estimates that the ownership of the American railroads, directly and indirectly, is represented by six million of our population. From this the number of owners of stocks and bonds in all the railways of the United States would today be over 800,000.

Accidents.

Muckrakers in general fill the air with cries of horror over the number of accidents on American railways. But against them is to be quoted what the Block Signal and Train Control Board says about safety: "Nowhere in the world have appliances for safeguarding railway transportation been so highly developed as in this country."

In 1892 the number of passengers killed in America was equal to 28 for each billion miles of passenger travel; in 1912 this has been reduced to 8.06; that is to say, in twenty years fatal accidents to passengers have been reduced by nearly 70 per cent.*

The following table of statistics for 23 years of fatalities charged to American railways shows that what is needed more than anything else is a trespass law that can be enforced:

	Killed	Per Cent.
Trespassers	103,566	53.8
Employees through their own fault or mischance	49,497	25.7
Other persons through their fault or mischance	18,328	9.5
Employees in accidents to trains	13,630	7.1
Passengers through their own fault or mischance	4,219	2.2
Passengers in accidents to trains	3,302	1.7
Total for 23 years	192,542	100.0
In accidents to trains	16,932	8.8
Through own fault or mischance	175,610	91.2

The following table, giving the units for Europe and this country, shows that while our passenger traffic is much less than that of Europe, our freight traffic vastly exceeds that of all Europe, and that most train accidents and wrecks in this country are due to freight traffic.

	All of Europe, 1910	United States, 1912
Miles of line	206,987	248,888
Passengers carried one mile	73,555,578,571	32,820,623,000
Freight tons carried one mile	117,360,167,100	261,416,643,000

It goes without saying that the mortality on our railways will always be too high just so long as there is a single passenger or employee killed. The way the socialists and near-socialists print statistics of the mortality on our railways is to divide the number of passenger carried by the number killed and compare this with the same data for Europe. This is seen to be unfair when it is considered that the average passenger in this country is carried a distance of 33 miles, against only 20 in France, 8 in Great Britain, 14 in Germany and 15 in Belgium.

The only true and fair way to compare the railways of this country with those of Europe is to take the passenger miles travelled. That means the number of passengers carried one mile. For

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[*] In a circular issued January 1, 1915, one of the most important railroad systems in the United States makes the statement that during the year 1914 not a single passenger out of the 188,411,876 carried on all of the 26,198 miles of track of the entire system was killed in a train accident.

instance, the number of passengers carried on the railways of this country in 1912 was in round numbers one billion, and as they rode an average distance of 33 miles it would make 33 billion miles, or 33 billion passengers carried one mile. The Interstate Commerce Commission reports that the number of passengers killed in 1912 was 270, which would be an average of just about 8 for each billion passenger miles travelled.[*] The latest available statistics for Europe as a whole are for the year 1910. The passenger miles travelled in Europe for that year were 73,555,578,571 and the number killed 554, the ratio being seven and a half passengers killed for each one billion passenger miles travelled. Thus we see that the ratio is fairly even, but there is, of course, a difference between the different countries in Europe which is worth looking into when we consider the fact that the half-baked socialists favoring government ownership are continually telling us how much safer the government railways are than those under private ownership. The following table shows a mighty important fact:

1909	Passenger Journeys, One Mile	Killed in Train Accidents
Great Britain (private) ...	1,717,850,260	1
France (State and private)	491,936,960	8
Germany (State)	469,978,000	25
Belgium (State)	193,059,662	11

The following year in France the number killed rose to 71, of which 66 were on the State-owned railways, and as the State railways number only about 5,600 miles the mortality on those government railways was for the year 1910 the highest in the world, private or public. In 1908 the 4,283 miles of socialistic railways in Belgium killed 48 passengers.

Concerning the fatalities the London *Railway Gazette*, in its issue of July 11, 1913, said: "The worst record in Europe is that of the French State railways. In proportion to the number of passengers carried one mile they killed almost four times as many passengers as the railways of any other leading country of Europe, and three times as many as the railways of Canada or the United States. Nor was their record for the year for which figures are given exceptional. The big railway accidents which have occurred in France for the last five years have been on the State systems, three on the old State system, and three on the Western."

Deficits and Failures.

The Prussian-Hesse railroads are the only State roads in Germany that pay. For all the others there is an annual deficit.

The Italian State railways are bankrupt today. The annual loss on the 8,908 miles of socialistic railways, with interest charges and taxes, is over $31,000,000. Those roads cost $1,131,300,000, or $126,886 per mile. Taking the official reports for the year 1909, we find that the total revenue was $97,652,000. The total expense for operation was $79,850,083, leaving a balance of $17,807,917. The interest charge for that year, at 3 per cent., was $33,939,000. Adding to this the net returns which the government would have received from taxes had the railways been in private hands, we have a total net loss from one year of socialistic operation of $31,571,083. This is another of those delightful "successes" which the socialists enthusiastically rejoice over. If the railways of the United States were socialized and had been run with the same "success" as the Italian railways, our net loss last year would have been over $900,000,000. The main trouble in Italy, as well as elsewhere, is that of a bureaucracy.

For the Swiss railways the reports for the year 1910 show receipts of $43,000,000 and expenses for operation of $27,000,000, in round numbers, a net profit on operation of $16,000,000. But before there could be any real profits, interest on capital must be paid, and the losses from taxes accounted for. As these Swiss roads cost $341,000,000, interest at 4 per cent. would eat up nearly all the profit. And, based upon the tax rate in this country, those roads in private hands would have paid over $1,500,000 annually in taxes.

The Russian railways comprise 41,888 miles. Of these the government owns and operates 29,100 miles. In the year 1908 there was a deficit on all of $57,998,278. (See consular report.) The deficits are growing larger each year, and the Rusian press is now discussing the question of turning wholly to private ownership. During the seven years 1905-1911 the loss on the government lines has aggregated approximately $250,000,000. The 10,787 miles of private line lost during the same seven years only $600,000. The wages of the Russian railway employees average about 50 cents a day. The government roads are cursed with red tapeism, as are all government enterprises everywhere, and as a result the Russian empire is hampered in its development through its existing State socialism.

Socialists brag of the fact that State-owned railways have never gone back to private ownership. There is agitation right now in France, Austria, Russia and Argentina to sell the State railways.

The French government owns and operates somewhat over five thousand miles of railways. It has made anything but a success of the transportation service. For many years it has owned the old State railway of 1,864 miles. This road cost, up to January, 1910, the sum of $183,400,000. The latest printed report, that of 1909, shows that the receipts for that year were $13,051,000, while the expenses for operation amounted to $10,514,340, leaving an apparent profit on operation of $2,536,160. But at only 3 per cent. the interest cost to the government would be $5,502,000. The taxes, on the basis the railroads of this country pay, would amount to nearly a million dollars annually, leaving a net yearly loss of nearly $4,000,000 on this one system.

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[*] For the same year the Commission reports that 13 persons travelling as passengers on freight trains were killed, and also 35 persons who are customarily carried on trains under special arrangements, such as postal clerks and express messengers, employees on Pullman cars, newsboys, live stock tenders and men in charge of freight. As none of these persons figure in the passenger mileage reported, they are excluded from the computation of the ratio between the number of passengers carried one mile and the number killed in train accidents.

The most glaring example of State inefficiency in the management of a great railway system is found in that of the Western Railway of France. This company was owned and operated as a private corporation up to January, 1909, when it became a government railway system. The road has been so poorly managed since that public meetings have been held at which indignant orators have made bitter attacks on the government. Wrecks have been frequent, with appalling loss of life. Under private management the road gave fair service and made an annual profit for its owners. The first year of public ownership the net deficit was $7,750,000. The deficit for 1910 was $11,700,000, and for 1911 the loss was $14,000,000. The estimated deficits for 1912 and 1913 are $16,100,000 and $18,000,000 respectively. (Lroy-Beaulieu, Paris *Temps.*)

Under private ownership the annual receipts of this road ranged from $13,000,000 to $16,000,000; since the government took over the management they have dropped to an average of $5,900,000. The proportion of working expenses under private operation never went above 55 per cent. Under State management they rose to 87 per cent. and there were added to the staff 5,280 officials and employees. "Such a condition," says *Le Temps,* "is a crying scandal." The annual report of this government white elephant is regularly delayed for thirteen months. "No matter what the State takes up," says *Le Temps,* "the management is characterized by disgraceful waste, if not by pillage."

If socialists want a fine example of the folly of socialistic ownership and operation of a railway system, they can find it in Canada, for there they can examine the comparative merits of both public and private ownership, under the same laws, the same wages and practically the same service.

Leaving out the Canadian Northern, which is an uncompleted road, we have for consideration three great systems, the Grand Trunk, the Canadian Pacific and the Intercolonial, the latter owned and operated by the Canadian government. Both the Grand Trunk and the Canadian Pacific pay annual dividends. The former has usually declared 5 to 7 per cent., the latter has yielded dividends up to 12 per cent.

The Intercolonial Railway is known far and wide over Canada as 'Canada's white elephant." This government railway embraces 1,449 miles. It stretches from Montreal eastward through the Maritime Provinces for a distance of more than a thousand miles. It taps the rich iron and coal mines of Nova Scotia and has a rail monopoly of that tranportation. It ought to be the best paying railway system in Canada, but it is the worst.

The government has sunk over $83,000,000 in this railway. Its gross earnings in 1909 were $8,602,286, and its working expenses were $9,052,522, leaving a deficit of $449,536. In 1912, the best year the road has had, the operating expenses were $10,593,785, showing a surplus of $2,750. But the interest charges on the cost of this "white elephant" amount, at 4 per cent., to $3,520,279 a year, and the loss in taxes to $700,000 annually. Thus we see that in its best year this socialistic railway lost, net, more than $4,000,000. That is what socialists call a success. Truly, it is a "socialistic success."

A writer in the Toronto *Mail and Express* stated in 1907 that the Intercolonial Railway had lost an average of nearly $4,000,000 a year for the preceding five years. The writer has travelled over the Intercolonial all the way to Sydney, B. C., and also over the Canadian Pacific Railway and the Grand Trunk. In reply to the question as to why this government railway failed to pay, one old farmer said: "Well, you see, the boys that run this 'white elephant' think more of getting the votes on election day than they do of getting the trains in on time." And that's just the trouble. The road is in politics up to its neck. The road is politically operated. It costs $7,500 per mile per year to operate this socialistic railroad, as against only $5,000 for the Grand Trunk, and even less for the Canadian Pacific. In other words, experience proves again that bureaucratic management of industrial enterprises always means waste, extravagance, inefficiency and political bossism.

Socialists themselves are today modifying their stories of the wonderful success of State ownership in Australia and New Zealand.

Former Congressman Victor L. Berger some months ago published in his *Social Democratic Herald* (suspended) a timely article on public ownership in New Zealand. He said: "Now, the fact is that the New Zealanders had public ownership for public utilities for over twenty years before they tried social reforms, and during the time of their greatest misery. So public ownership of public utilities did not make them prosperous." And he said, further: "Just now there is a boom—about in the same sense that there is 'prosperity' in America, but only a few years ago the reports of the labor secretary of the colony of New Zealand were as gloomy reading as those of any other country."

Henry D. Lloyd, a socialist author, said in his book about New Zealand: "That even now—that is, in boom times—the streets of the larger cities of New Zealand swarm with young men and young women, who, unfortunately, are not unemployed, though their hands are idle." Mr. E. E. Clark, member of the Australian Parliament, says: "There must be an abolition of excessive State Socialism, or it will drag the country to a condition which will shortly render it unfit to live in." Let us see what Mr. Lloyd had to say about Australian railways. On page 63 of "Newest England," he says: "Equitable rates and anything like a scientific and intelligent commercial policy have manifestly been subordinated to the exigencies of the treasury. There has been an unreasoning and almost uniform insistence upon high and vexatious charges." And, on page 49: "None of the Australian governments make both ends meet in their railroads. None of them are able to pay out of the receipts of the railroads the full interest on the money borrowed to build them. The taxpayers have to go down in their pockets every year to make the deficit good." Page 60: "The New Zealand railways are in some respects almost primitive. They can be shown to be inferior to the roads of Europe and America in speed and comfort." Page 78: "Even under public ownership the democracy has not yet found out how to make a democratic tariff." Mr. Lloyd then shows how unequal the rates are, and how the country districts of New Zealand, though the less able, are compelled to pay three-fourths of the passenger receipts and nearly all the freight-receipts.

Liberty and Progress, a Melbourne publication, published tables of statistics in the early months of 1908, showing that the Australian States had lost about $164,000,000 before they began to cover expenses, in the operation of the State railways. This means a continuous annual expense of some $6,000,000 for interest charges on the loss of $164,000,000.

Mr. A. W. Pease, editor of the *Pastoralist Review*, shows that not only are the Australian railways woefully inefficient, but also that other countries which have proceeded on the plan of allowing owners of capital to bear their own risks and losses in the matter of railway building, have shot away ahead of Australia in their competition for the trade of the world. He shows the condition of Argentina in comparison with Australia. In the former a network of railways has served to develop the interior with six trunk lines, while Australia can boast of only one. In 1908 Argentina opened up 1,300 miles of railway and Australia only 468 miles. In the same year Argentina had 3,900 miles in course of construction and 6,000 miles under survey; the total under construction in Australia was only 685 miles.

According to the London *Times*, June 28, 1912, the capitalization of the Australian railways for road and equipment was $46,217 per mile. This is very high when we consider that there are few bridges, a nearly level country and a labor cost per day of 30 per cent. less than in this country. A considerable amount of the mileage is narrow gauge, an important fact which public ownership advocates conveniently forget to mention. The interest upon the cost of the Australian railways, together with the loss of the interest upon the $164,000,000 of losses on operation (before the operating expenses were less than the revenue), amount to an annual charge of more than $40,000,000. To this must be added the loss in taxes that these lines would have paid to the State if they had been under private ownership, which, based upon the rate paid by the American railways, would amount to more than $7,500,000 a year.

The Washington *Star*, investigating the railways of New Zealand, finds that the freight rates are from two to three times as high as they are in this country. It also says that the alleged cheap passenger rates are not enjoyed by the general public, but by special classes only, such as those who can afford the time to take long vacations, and that the special class tickets are issued at a loss. Thus we see that one class is carried at a loss which has to be met by overcharging all the people. The *Star* also found that the speed and general comfort of the passengers are far inferior to those in this country; that government ownership in New Zealand has almost completely put an end to activity in the construction of new roads and has arrested the development of the country; and further, that, had the New Zealand system prevailed in this country the phenomenal growth of such States as Oklahoma would have been unknown. On the question of profits and taxes paid by the privately owned railroads of this country, the *Star* shows that for twenty years the taxes alone would offset the normal net earnings of the New Zealand railways; and that railroad patronage is used in New Zealand for political purposes by the officials, and certain sections of the country are punished or rewarded, as the case may be, by good or poor railway service, according to the way they vote at the general elections. The New Zealand railroads are operated at a loss, says the *Star*, which the taxpayers are obliged to make good for the benefit of those who live along the line of the railroad, or who profit directly by it. The evils which are complained of in little New Zealand would be multiplied a thousand fold in this great country were we to socialize the railways.

Labor Under Government Ownership.

What has the workingman, the railroad employee, to look for under this government ownership scheme which we are asked to believe is such a wonderful blessing to everybody in the countries that have tried it? The American workingman who once learns the facts will be apt to conclude that it is a blessing in disguise and so much in disguise that the blessing cannot be found at all.

In 1900 the 1,017,653 American railroad employees received 38.82 per cent. of the total gross revenue of the railroads; in 1912 the 1,750,000 employees received 44.20 per cent. The railroad shopman who received $2 in 1900 now receives $2.62. In thirty years the trackman's wages have increased 70 per cent., and the trainman's 59 per cent. Labor welfare work, which was almost unknown thirty years ago, is now a part of the administration of practically every great railway system in America. The railroad Y. M. C. A., partly supported by the railroads, is found in every railroad center. The railroad brotherhood officials meet the railroad company officials on common ground for the mutual settlement of all kinds of disputes, thus eliminating in large degree the possibility of strikes. In contrast, last year, when the government of South Africa sought to curtail expenses by the discharge of only 70 shopmen, a government committee having reported that the railroad shops were overstaffed by 1,750 men, the attempt caused a strike of 35,000 railway employees, which paralyzed the transportation system of the country, and the end of that industrial contest cannot be seen, as the government was defeated in the March (1914) elections.

As already shown, wages on the various State-owned railroads in Europe are from one-half to one-third those in this country. Strikes have taken place on the State railways in France, Austria, South Africa and Australia, and threats of strikes have been made elsewhere, but the employes have found that under government ownership they may be practically compelled to work against their will, and that to refuse to work amounts to treason against the State. Also, under civil service regulation, which would control the situation, the railway brotherhoods could tear up their charters and forget that they ever had organizations. Do these socialist dreamers imagine that industrial peace could be preserved in this country under a schedule which, if logically carried out, might at any time subject nearly one million and three-quarters of American workingmen to involuntary servitude?

The conclusion to be drawn from the foregoing facts is the utter failure of government ownership everywhere and in all respects compared with private management. Socialistic management has always and ever proved extravagant, inefficient, non-progressive and a constant source of favoritism and waste.

The nationalization of any great railway system will transfer a great industry from the domain of business to that of politics.

The Requirements of the Texas Railroads

NOTE: The following statement regarding the necessity for permitting Texas railroads to increase their freight rates was recently given to the press by F. G. Pettibone, vice-president and general manager of the Gulf, Colorado and Santa Fe Railroad.

IN the matter of the application of the railroads of Texas for an advance in freight rates, with the view to being enabled to earn sufficient money to maintain the properties and to meet fixed charges and pay a reasonable return on the value of the properties devoted to public use, there is not now, nor has there ever been, any desire on the part of the carriers to favor any city or section of Texas, or to place handicaps on any city or section. The roads did not file this application until experience demonstrated that relief must be had from prevailing conditions. This relief can be secured in only one way—through an advance in freight rates—for transportation is the only thing the roads have for sale, and from transportation the roads derive their revenue.

The bulk of the money taken in by railroads is spent by the operating department. In this department the natural unit is the cost per ton per mile hauled. Naturally the greater the length hauled the greater the cost. In the matter of freight rates, remuneration stops the very mile the common point territory is reached. In other words, there is a cessation of income at a fixed distance, but there is a continual expense connected with every shipment as long as that shipment is in transit.

In a measure a railroad may be compared to a farm. Indeed there is a closer relationship between the farmers and railroads than between railroads and any other industry in Texas. During a period of good years a farmer, provided he gets the proper prices for his commodities, ought to be able to lay aside something for depreciation of land fertility, for betterments and for lean years. If every acre could be made to produce the maximum yield every year there would not be heard the cry, "Back to the land," for the very attractiveness of the farm under such conditions would insure the cultivation of every productive acre.

It is the same way with the railroads. If every railroad in Texas could secure every day in the year all the tonnage it is capable of moving there would not be so much necessity for an increase in freight rates. The great bulk of the business, however, done by Texas lines is done during a period of five or six months of the year. This leaves a slack period of from six to seven months each year. Unless the average movement is sufficient to yield revenue to meet the situation that arises the ultimate result is obvious.

The Texas common point territory is a heritage from the days when the civilization of Texas was crowded into a relatively small area. When this common point territory was established conditions bore but small relationship to conditions that prevail to-day. It has never been possible for our operating department to haul at the same expense a commodity for 600 or 700 miles that it costs to haul for 150 or 250 miles. Yet, notwithstanding the fact that the outgo increases with the mileage hauled, the income from the transportation remains stationary when the common point maximum is reached, which averages about 200 miles.

This common point scheme is bound to become more aggravating as Texas develops and settles, as cities spring up and as farms are opened. In this connection, a recent communication from E. C. Price, traffic manager of the Nash Hardware Company of Fort Worth, published in *The Traffic World,* says: "It could not be expected of the carriers to continue to haul a shipment a distance of 750 miles for the same amount of revenue they receive on the same shipment for a 250-mile haul. I felt that the time had come for shippers to submit to this surgical operation (if it could be called such), and the quicker it was performed the better the wound would heal and business conditions would adjust themselves. I did not lose sight of the principles of ratemaking, and realized that we should have no justification for opposing such an issue, as distance must be considered a great factor in making class rates." Mr. Price was writing about his testimony before the hearing of the Texas Railroad Commission recently closed at Austin.

Certainly it offers but little incentive to build railroads in those sections of Texas that are today without modern transportation facilities, when such projected lines must start with the handicap of receiving but the tag end of a body of rates that as a whole are not remunerative, under a system that yields no additional revenue when mileage is lengthened. No farmer would care to put an additional hundred acres under cultivation if he knew in advance that his gross income would not be increased thereby and that his net income would be reduced to just such an amount as it cost to cultivate this additional hundred acres.

During the Dallas hearing I cited to the Commission the instance of where the Santa Fe built a line from Lometa to Eden. The people along this line were anxious for this road to be built, showing their wishes in a tangible way. As a result of this line being built the farmers who raise cotton in this section are not put to the necessity of hauling the cotton by wagon to Goldthwaite, Lometa and other points on the Santa Fe Lampasas branch, but they are enabled to sell it at the new markets opened at their very doors. Yet the Santa Fe does not receive any more for hauling this cotton this additional mileage than it received when the cotton was hauled to the former markets on the Santa Fe, though the producers have been greatly benefited.

Speaking candidly as a railroad official, occupying what may properly be termed a trusteeship, representing those who have made large investments in railroads in Texas, and the people of Texas, I frankly declare that the railroads of Texas are to-day confronted with a condition that is more than merely discouraging. Upon no industry has the high cost of living fallen with more depressing force than upon the carriers. As our expenses have piled up, our income has been nibbled and nibbled by rate reductions until we are now confronted by a situation that calls for action. No business in the world can long sustain itself under the burdens and handicaps that have been placed upon the carriers.

If other lines of business—and I might include farming—were no more profitable than is railroading in Texas to-day, a crisis in the affairs of commerce would exist. The roads are not asking favors as such. The carriers have an abiding faith in the fairness of the informed men and women of Texas. They believe that, if the people of Texas will give serious study to the affairs of the railroads, the control of which is largely vested in the people through legislative enactments, the carriers will be accorded a square deal. They are asking nothing more than this, and this they are of right entitled to receive.

Speaking for the carriers as a whole, I assert that it would profit the carriers more to see every acre of tillable land in Texas under cultivation than it would to have a dozen cities in Texas of half a million population each, for cities cannot exist without farms to sustain them. Farmers create the great bulk of the tonnage that supplies the revenue for the roads. If every Texas farmer were prosperous, every railroad in Texas would share in this prosperity. If the railroads are not convenient to serve the farmers, or if through lack of funds they cannot give that kind of service that ought to be given to the products of the soil, then this fact is bound to have a depressing effect upon the very foundation of the wealth of Texas.

The Arkansas Rate Situation

NOTE.—The following statement regarding the rate situation in Arkansas, has been made public by W. B. Biddle, Receiver and Chief Traffic officer of the Frisco.

THE attitude of the Frisco Railroad in connection with Arkansas local freight rates has apparently been so misunderstood that a statement of the facts seems necessary in order that any person who is interested or who believes in a square deal for everyone, including the railroad, may reach an intelligent conclusion as to the justice of our position.

The Arkansas state freight rates have been in litigation for nearly eight years. The tariffs issued by the Arkansas Railroad Commission have twice been reviewed and passed upon by the United States Court.

In the first case, the Court held that rates that the railroads were permitted to charge under Commission Freight Tariff No. 3, taken in connection with the passenger rate then in force, did not give the carriers reasonable compensation for their service, and held that the roads were entitled to an increase of 33-1/3 per cent. in their revenues.

This decision of the Court was followed by a conference between the Commission and the railroads, the result of which was the so-called Court Tariff.

While the Court Tariff only gave the Frisco Railroad an increase of 13-½ per cent. in its freight revenues, it was accepted in good faith as an experiment, and with the intention of asking for a revision if the results were unsatisfactory.

This tariff remained in effect until, following the decision of the Supreme Court in the Minnesota Rate Case, the Frisco road voluntarily reinstated Commission Tariff No. 3, which had previously been condemned by the Court as affording inadequate revenue to the carriers. This action was taken so that pending the final hearing of the Frisco's application for higher rates the public might have the benefit of the low rates prescribed by the Arkansas Commission.

This tariff was again taken into Court and the decision rendered early in April, 1915, declared that under the rates established by the Commission, the business was handled at an actual loss.

This decision made it necessary for the Frisco Railroad to prepare and issue a new freight tariff, and having in mind the thought that this gave us the opportunity to submit a tariff that would represent the carriers' views of reasonable and defensible freight rates, a great deal of thought was given to its preparation; the responsible officials of some of the other important Arkansas lines were consulted and some changes were made at their suggestions.

When the tariff was ready for publication, the Arkansas Commission was advised and a conference was requested for the purpose of securing an expression from the Commission as to the figures shown in the proposed new tariff.

The conference was held and the tariff as a whole was rejected by the Commission, without any analysis being made. Thereupon the new tariff was made effective by the Frisco on legal notice.

This voluntary tariff No. 2806 issued by the Frisco was at once attacked by the Commission, and, upon hearing, the Court held that the rates therein were unreasonable wherever they were in excess of the interstate rates then in effect into or out of the State of Arkansas.

The Court did not say that the revenue derived from the new tariff was excessive, either as a whole or as applied to the rates which were higher than the interstate rates; nor did the decision say that the new rates were unreasonable in and of themselves. A new tariff in line with the order of the Court has been prepared and became effective on July 26, 1915.

In explanation of Frisco Tariff No. 2806, we wish to emphasize the fact that it was intended to represent the views of experienced and responsible men of fair and defensible freight rates.

Inasmuch as it was a tariff made by the railroad itself, the rates shown therein could properly be held to be the maximum rates that the carrier felt that it should be permitted to charge.

The rates carried by other lines in the State of Arkansas are not voluntary rates; they are made by the Arkansas Commission and are protested by the roads; many of the interstate rates into or out of the State of Arkansas are not voluntary rates; many of the rates carried in the surrounding states are not vountary rates: so that in submitting what was believed to be a reasonable tariff, some of these conditions were ignored to a large extent.

While the new tariff represented their best judgment as to a reasonable basis of rates, the

Frisco did not then and does not now hold that every rate in this new tariff was proper. They were prepared to discuss them with the Commission or with interested shippers and make any modification that could be shown to be reasonable.

They also realized that in justice to shippers and producers, as well as their own interests, modifications in some of these rates would have to be made to meet the competition of other lines.

In the matter of joint rates with other lines: The Frisco has never desired or intended to discontinue making joint rates.

They are ready to make them today, but so long as a different basis of rates prevails on different lines, it is difficult to see how this can be accomplished.

It is a plain straightforward business proposition.

Do the people of Arkansas want the railroads to provide transportation facilities at less than reasonable rates? We do not think so.

We believe that we are entitled to greater compensation than we are receiving and that we are obligated to use all honorable means to accomplish this result.

Waterways: Their Place in Our Transportation System

NOTE: Under the above title, Mr. Walter L. Fisher has contributed the results of a comprehensive and scientific study of the employment of waterways both in Europe and in the United States. While Mr. Fisher is an advocate of the proper employment of such means of transportation, he believes that "if we are to avoid in the future the painful necessity of continued explanations of why waterway transportation is a failure, it is necessary for us to begin now to supersede guess work and generalized assumptions by impartial and comprehensive analysis, and by a provision in advance for this physical and financial co-operative relations between waterway and railway that are absolutely essential to real success in water transportation."

LIKE almost everyone else who has advocated waterway development, I started some years ago with the general assumption that transportation by water was as a rule cheaper than transportation by rail; and that since the United States was blessed by nature with so extensive and so advantageously distributed a system of navigable lakes and rivers, it might safely be concluded without extended investigation that the burden of proof was upon the opponents of waterway development to show why almost any considerable lake or river should not be made and kept navigable at public expense, and why many of these lakes and rivers should not be connected by artificial canals. A greater knowledge, however, of the actual history and present conditions of internal waterways in this and other countries and a clearer understanding of the fundamental principles underlying transportation development has led to a substantial modification of my previous views upon this subject.

I am no longer able to explain the failure of many waterway projects and the great decline of the traffic upon others solely by the improper competitive methods of the railroads or by the inadequate size or depth of the waterways. I have no doubt that these things have materially affected the results, but I have come to appreciate that even more potent than these has been the effect of fundamental commercial principles and economic laws which will continue to operate even after the improper competition of railroads has been checked and the physical condition of the waterways has been improved. So far as transportation is concerned, I have come to believe that both from the point of view of efficiency and from the point of view of cost the railroads possess decided advantages over most artificial waterways and over many natural waterways, and that the burden of proof has shifted from the opponents to the proponents of any particular waterway development. This is not to say that some waterway projects may not be justified on navigation grounds alone; that others may not properly be developed as a part of a conservation program including the control of floods, the development of water power, the disposal of drainage, and the purification of the water supply; or, indeed, that a combination of waterways and railways may not furnish the most advantageous transportation system for the country as a whole. I wish to emphasize, however, that the time has come when we should cease to take for granted the feasibility of all waterway projects and should consider each project on its merits and in the light of all the data that are available. It has now become convincingly apparent that the problem of internal navigation in this country is a part of the greater problem of our transportation system as a whole.

Let us consider briefly the reasons that lead to the belief that the burden of proof now lies with the advocates of waterway development. First, as to certain advantages possessed by the railroads. Natural waterways usually follow winding courses which may not run in the direction of the natural flow of traffic. Commerce once flowed chiefly along these winding ways because they were then the best available avenues of transportation. Today the railroad has enabled commerce to establish short and more direct routes along which trade has tended to concentrate. The railroad may cut through or pass over natural obstacles which the waterway must pass around. The Lakes-to-the-Gulf waterway will be nearly twice the length of the railroad route; that is to say, 1,610 miles by water as compared with 930 miles via the Illinois Central. That has a great bearing when one comes to consider ton-mile rates on the one and on the other. The ton-mile rate on the one will have to be only about one half that on the other in order to put them on a parity. The usual statistics of ton-mile rates may, therefore, be quite misleading.

Railroads can be operated day and night, while night traffic is impossible on some and greatly restricted on other waterways. Railroad traffic is comparatively uninterrupted by climatic or seasonal conditions. Waterways in the northern part of our country are obstructed by ice for a number of months during the year. The figures vary, depending upon the character of the stream and its location, but it is a safe statement that notwithstanding the interruptions which do occur on railroads, climatic conditions are more disadvantageous to waterways. The importance of this principle is increased when we understand that traffic which must use the railroads during part of the season tends to continue to use them at other times.

Shifting channels and varying levels are important disadvantage in rivers. The variation in the depth of the water is a great disadvantage on the Mississippi River. I remember having seen statistics showing that the height of the Mississippi at St. Louis varied some forty feet during the year. You cannot build a perpendicular wharf or dock because the difference in the levels is prohibitive. The result is that we have that survival of the fittest which perhaps to many of us seems archaic, but which after all is perhaps the best—the floating wharf, which rises and falls with the stream, while a cobblestone bank furnishes the incline up and down which the freight is moved.

Railroads can provide practically unlimited extensions on spur-tracks for the collection and delivery of freight for commodities and industries remote from their main lines. Waterway branches and feeders are frequently impossible and always comparatively expensive. The unit of railway transportation is the car, which permits a thousand conveniences and economies that are impossible where the unit is the steamboat or the barge. In this unit of the car the railway can collect and distribute its freight without rehandling over a range utterly impracticable by water.

Another of the advantages of rail transportation is that transshipment from car to car is cheaper and quicker than transshipment from boat to boat. While accurate statistics are not available and the differences are probably not great, my own judgment is that the cost of transfer from car to car is cheaper than from boat to boat except in certain cases of bulk freight. It ought not to apply to such commodities as grain, of course, which can be lifted mechanically. The cost of transshipment from barge to ocean steamer is often cheaper, but the difficulty is that where freight does not originate on the banks of the waterway the delay and cost of transshipment usually give the entire transportation service to the railroad. This has been true in other countries as well as in the United States. In France transshipments are rare, and in Germany they are accomplished by means of a policy which fixes merely a nominal charge for this service.

Again, railway transportation is speedier than water transportation. The average daily movement of the American freight car does not establish a different conclusion, although it shows an appalling inefficiency in railway operation which real waterway competition might beneficially affect. The greater speed afforded by the railways is of sufficient importance with some kinds of traffic to make water competition impracticable on this traffic.

Another advantage of the railways has been their decidedly superior administration and organization. Waterway administration in this country, especially in its larger co-operative aspects, has been most discouragingly inefficient. Waterways have never approximated the degree of efficiency of co-operative interrelationship that is evidenced by the standard gauge of railways, the interchange of cars, and the establishment of through routes and joint traffic arrangements.

Finally, railroads practically insure their freight. The railroad is responsible for damages, while waterways are not. As a rule, waterways compel the shipper to insure his own freight, and insurance rates on water freight must always be taken into consideration in figuring the total cost of water transportation. The railway bill of lading also has a great advantage over the waterways receipt.

Having outlined the many advantages possessed by railroads from the standpoint of efficiency of service, we may turn to a consideration of the relative cost of the two types of transportation. It is here that waterways are commonly believed to have the overwhelming advantage. We shall find, however, that such is not always the case.

In computing the relative cost of transportation by water and by rail it has been a common practice to overlook entirely the question of the cost of construction of the waterway. Railroad rates are designed to cover overhead charges, but waterway rates, as a rule, need make no allowance for capital cost, for the reason that the waterway is usually constructed and maintained at the expense of the State. The taxes to cover these State expenditures must therefore be added to the water rates in order to give us the inclusive cost. Without attempting at this place a conclusive proof of the question of cost, a few citations of importance may be made. The average cost of American railroads is approximately $60,000 per mile of single track or $100,000 per mile of double track. Estimates made by Professor Moulton seem clearly to show that the present enlargement of the Erie Canal will probably cost $330,000 per mile, or $260,000 if we include that portion of the Hudson River which the canal will make available as a connected waterway from Buffalo to New York. It appears that the total cost of this project will ultimately be in the neighborhood of $175,000,000. This means at four per cent an annual interest charge of $7,000,000, which must be met by increased taxation. Upon this basis the inclusive cost of transportation on the Erie Canal would be substantially greater than on the railroads.

Comparisons have been made by Professor Moulton of the inclusive costs of transportation by railways and by all the waterways in Germany, and he finds that with the exception of the Rhine River, which has required almost no regulative work, the cost of transportation is substantially higher by water than by rail. Two German railway authorities, Rathenau and Cauer, have made a similar comparison between the cost of the Rhine-Elbe Canal and an all-freight railroad from the Rhine to Berlin, and have concluded that such a railroad would cost one half as much as the waterway and would have a greater capacity than a canal operating 600-ton barges, which is the customary type of boat for canal traffic in Germany. Similar comparisons have been made by such men as Colson in France and Acworth in England. These estimates certainly establish the prima facie presumption that, if interest on the capital invested be considered, on many, if not on most inland waterways the inclusive cost of transportation is greater than on railways. There are important exceptions, however, to this general conclusion.

Projects requiring a public expenditure which, even though large in amount, is relatively small when we consider the total length of water haul which such expenditures make available, undoubtedly offer decisive advantages of economy and often of capacity. Such are the Great Lakes, upon which it is necessary to make expenditures only for particular connections, like the Sault Ste. Marie Canal or at terminal harbors. Transportation development of our great rivers depends upon similar considerations, modified, as they should be, by the justification of large expenditures for conservation purposes, such as the control of floods, the drainage of swampy and overflowed areas, the development of water power, and the purification of the water supply. In a comprehensive, intelligent, and beneficent conservation program, improvement of navigation will often be abundantly justified as an incident of a larger plan, where it might not be justified if it stood alone.

It will be helpful to take a summary view of the actual results of waterway expenditures in this and in other countries. The total expenditure in the United States for internal waterway improvement cannot be far from three quarters of a billion dollars. Not all of this amount has been expended for the improvement of navigation, but most of it has been spent in the belief that it would be justified in large part by the resulting improvement in transportation facilities. Much of this expenditure has been abundantly justified. The Erie Canal alone reduced the cost of transporting freight from the seaboard to Ohio to one tenth of the previous cost by land, and traffic on this water route went up by leaps and bounds until 1880, when it amounted to 4,500,000 tons. In that year the canals of New York State carried a total of 6,500,000 tons. In the same year the traffic on the Mississippi River at St. Louis was over 1,250,000 tons. Upon the other hand, much of the public money spent upon canals was undoubtedly wasted. Many projects were never completed and many were so situated or constructed that they were foredoomed to failure from the start. Out of a total of 4,633 miles of canals, 2,444 miles have been abandoned; and the Preliminary Report of the Inland Waterways Commission, in 1908, gave only 2,189 miles of Federal, State, and private canals as then in operation. The economic revolution and commercial expansion that accompanied and were facilitated by the substitution of the steamboat and the barge for the wagon and the sled have been followed by the greater revolution which the railroad has wrought in our methods and facilities of transportation. In the course of this revolution the waterway has steadily lost ground until to-day only the Ohio River and the Great Lakes are really able to make a creditable showing in volume of traffic. On the Lakes this showing is due to heavy bulk freight, such as ore, coal, and grain, carried in vessels of special design, constantly increasing in size. It is traffic of this sort, especially coal, that has enabled the Ohio River, alone of all our rivers, to hold its own in the volume of its traffic. On the Erie Canal the great tonnage of 1880 (4,500,000 tons) had fallen to less than 2,000,000 tons in 1905. The Federal Engineering Board stated, in 1909, that "the entire commerce of the Mississippi River system, including all tributaries except the Ohio, was reported in 1889 as 12,492,535 tons; while in 1906 it was only 4,304,288 tons." Notwithstanding the maintenance of an eight-foot channel from St. Louis to New Orleans, and the improvements on the Upper Mississippi, the total river tonnage at St. Louis diminished from 1,332,885 tons in 1886 to 365,920 tons in 1908, and of this remainder not over 49,530 tons represented traffic with towns on the Mississippi below Cairo.

The National Waterways Commission states that grain shipments on the Upper Mississippi River have now ceased almost entirely. The receipts of cotton at New Orleans by river have steadily decreased since 1880, while the receipts by rail have rapidly increased. At St. Louis the receipts of cotton by river fell from 13,500 bales in 1890 to 3,000 bales in 1905.

Disconcerting as these figures are, they find their parallel in the canals of Great Britain. The total tonnage on the 2,416 miles of navigable canals in England and Wales declined nearly 1,000,000 tons between 1888 and 1905, while the railroad traffic increased nearly 200,000,000. Internal waterway traffic in that country, as in this, is now almost wholly confined to low-grade bulk freight, and the volume of even this traffic is declining. This, moreover, has occurred in a country where the interruptions to traffic from flood, drought, and ice are almost negligible when compared with American conditions. The Grand Junction Canal passes through one hundred miles of farm lands in order to reach London, but the Royal Commission reports that "in 1905 it carried but 5,812 tons of agricultural produce out of a total canal traffic of 1,794,233 tons."

The internal waterways of Germany and France show precisely the same results as do those in England and America with regard to the character of the traffic, but altogether different results with respect to its volume. This is due to a fundamental difference in government attitude toward both canals and railroads. Germany and France have apparently accepted the economic law which tends to confine the traffic of waterways to low-grade bulk freight, and both countries have pursued a consistent policy of diverting as much as possible of this class of traffic from railroads to waterways. In order to accomplish this result both countries make direct financial contributions to the waterways in aid of this traffic, and both countries impose arbitrary restrictions upon the railroads in respect to the same class of traffic. The precise methods, however, are different in important respects in the two countries.

In Germany the ton mileage of waterways has increased from 1,798,000,000 in 1875 to 9,300,000,000 in 1905. This is a greater increase than is shown by the railways in the same period, although the railway mileage has more than doubled, while the canal mileage has practically stood still. The explanation for this is largely the diversion of heavy bulk traffic to the waterways, in consequence of the direct control of the government over the railways. Railroads have been developed as feeders from coal fields and ore fields to waterways, and railroad rates on low-class bulk freight have been maintained by the government at a level sufficiently high to force great quantities of this traffic to the waterways. Tolls have been charged on canals but not on rivers. Transshipment facilities have been provided and operated at public expense, with nominal charges, which create substantial deficits that are met by taxes.

The Rhine River is the most important and the most significant waterway in Germany. Its course is unusually straight, it has little current, no locks, no tolls, and comparatively little fluctuation in flow. It is closed by ice only seventeen days in the year and by flood only two days. Of its imports or up-river traffic, 47 per cent consists of ores; 19 per cent, of grain; 10 per cent, of wood, and 4 per cent, of coal—these four classes aggregating 80 per cent of the total tonnage. Of its exports or down-river traffic, 60 per cent is coal, 10½ per cent is manufactured iron. The traffic on the Dortmund-Ems Canal, which runs between the Westphalian coal fields and the North Sea, a distance of one hundred and fifty-five miles, amounted to 2,313,000 tons in 1908, and is largely composed of iron and ore up and coal down.

In France the same general policy toward waterway development has been pursued with one important difference: France does not impose upon the public the cost of transshipment between railroad and canal. As a result, very little transshipment occurs. Upon the other hand, all tolls and dues were abolished in 1880, and if the waterways were to be charged now with the carrying charges upon their total cost there would be an annual loss of interest of $14,400,000, computed at 4 per cent, to which should be added the annual cost of maintenance, making a total of $19,000,000 a year or $2,500 per mile or 56 cents a ton on the total tonnage of 34,030,000 tons. The result of this policy and of the increasing construction of canals has been a steady increase in the volume of waterway traffic since 1880.

Railroad traffic has also increased both generally and in bulk freight during the same period, but the water traffic has been maintained, not only by the public expenditures above mentioned, but by requiring the railroads to maintain rates 20 per cent higher than those available by water. The statistics for 1907 are interesting in showing that 29.5 per cent of the waterway traffic consisted of coal, coke, and briquettes, 36.3 per cent was stone, gravel, and lime, and only 3.3 per cent is listed as "industrial products." The percentage of agricultural produce, however, is 13.2 per cent—much higher than in Germany or in the United States—and the explanation for this is said to be the large quantity of wine which is shipped in casks.

The conclusions to be drawn from the foregoing statement of the various advantages of rail transportation, and from the brief survey of our own and foreign experience with water transportation, seem to me to be that some waterway expenditures are justified while others are not; and that the burden of proof has shifted from the opponents to the advocates of waterway development.

The Business Situation as Reviewed by the Chamber of Commerce of the United States

NOTE.—The Chamber of Commerce of the United States with headquarters at Washington, has recently concluded an exhaustive investigation regarding business conditions in all sections of the country. The following statement presents the results of this investigation.

THE former feeling of apprehension, of "something is going to happen" because of the European war, has almost entirely disappeared, according to a special report submitted by the Committee on Statistics and Standards of the Chamber of Commerce of the United States. Even with the possibility of our being entangled in this gigantic world conflict, there still remains a pronounced belief that notwithstanding such untoward conditions business is bound to improve and show distinct advancement. Confidence in the future, according to this committee, of which A. W. Douglas of St. Louis is chairman, has grown apace with the steady progress of the crops and the slow but continual improvement in industrial affairs.

In the main, the thoughts and interests of the great mass of producers, whether in the city in industrial life, or in the countryside in agricultural pursuits, are in their immediate local happenings and in all constructive measures which will benefit their particular communities rather than either the great national or international problems. There still continues, however, much conservatism and caution in buying and in new commitments. The feeling seems to be that it is best to wait until the results of the crops are known beyond question before venturing in a more extended way, and as a consequence stocks of merchandise throughout the country continue light.

Benefit to Crops Exceeds Rain Damage.

The weather has been the keynote of the crop situation for the past six weeks. Since the first of June there have been continued, excessive rains in almost all sections of the country, the exceptions being few and distinctly local. The effect upon the crops has been both good and bad, but the benefit has far exceeded the damage, as serious as has been the latter in some sections. This illustrates strongly the statement made before in reports submitted by the National Chamber's committee, that, in general, wet years are years of bounteous crops; while unduly dry years during the growing season invariably are marked with serious crop disaster.

Varying Commercial and Industrial Condition.

Lumber interests are everywhere very quiet. A general dearth of building outside of the large cities is having a very depressing effect on the sale of all building material.

The conditions of mining vary sharply as to the thing mined. Copper mines are running full time and new ones are opening up. Zinc and lead mines are exceedingly busy, and the mining of iron ore is improving.

Coal mining is everywhere dull, largely because of slack demand from the railroads and the slow business in most manufacturing. Slate mining in Pennsylvania is at low stage because of lack of demand. Silver mining suffers because of low prices of silver; and gold mining is not much better save in a few favored localities.

There is but little business in the naval stores because of lack of demand. Phosphate mines of Florida still remain closed because of the European war. Unfavorable reports come alike from the fisheries of Oregon, Washington, the Gulf and along the Atlantic Coasts.

War Orders Help Some Manufacturers.

Manufacturing varies much according to the articles made, though in general is very quiet. Steel and iron business shows distinct improvement with increasing orders. Business of cotton and woolen mills is only fair. Those manufacturers in different sections who have orders for war contracts are exceedingly busy. Furniture business in Michigan, northern Indiana, and Chicago is alike dull. Paper mills are running only three-quarters time. Cement factories and those making bricks and tile report only fair business. The oil industry as a whole is exceedingly dull. There is very little demand for railroad ties.

Progress in Fighting the Foot and Mouth Disease.

In general because of abundant feed and low prices, the raising of live stock is a growing industry in all sections of the country. From the South come reports of increasing numbers of animals. The greatly increased raising in all sections this year of grain and forage crops points to a large number of cattle and greater attention to stock raising and to dairy products. The foot and mouth disease seems to have been entirely stamped out for the time being, and the campaign of sanitation and vaccination against hog cholera has had decidedly favorable results. Hogs are increasing in numbers because of abundant feed, and due to diminishing ravages of hog cholera.

In every section of the country, without exception, the dairy industry is spoken of as a growing one and receiving increasing attention from the farmer. Mules and horses are in good demand and at desirable prices. This industry has been favorably affected by the European war.

Estimated Probable Wheat Yield.

Dealing specifically with crops the report goes on to say that stimulated by the abnormal demand of the warring nations of Europe, the wheat acreage this season in this country increased beyond any previous planting. It was approximately twelve and one-half per cent. greater in winter wheat and ten per cent. in spring wheat than in 1914. The continued wet weather delayed growth, harvesting and threshing. Much damage was done to the standing grain in the lowlands. Many fields were washed away entirely by the floods, and subsequent damage accrued in shocks because of sprouting and too much moisture. These accumulated results have made necessary a somewhat reduced estimate of both spring and winter wheat, and based on the reports under consideration, the estimated probable yield will be 948,500,000 bushels.

Hill Country Corn Conditions Offset Lowland Damage.

While Indian corn needs an abundance of moisture for its complete growth and development, it has had a superabundance this season. The result is that in the bottoms the crop in many sections is hurt beyond repair. On the uplands and the hill country the conditions, however, are of the very best and will do much to repair the damage done in the lowlands. On these hills, stalks nine to ten feet with two ears to each stalk are common and two weeks ago corn was tasseling as far north as the southern line of Iowa and along that latitude.

In the northern sections, especially in Minnesota, Wisconsin, the two Dakotas, northern Nebraska and the Peninsula of Michigan, the growth of corn has been much retarded by continued cool, wet weather. This is a condition that no amount of favorable weather from now on can altogether remedy. The outlook therefore in those sections is not encouraging. The present estimate is for a crop of approximately 2,935,000,000 bushels, or about ten per cent. greater than last year. Of this amount the fifteen Southern states will produce about thirty-five per cent. as against an average yield of thirty per cent. in the past. South of the southern line of Missouri, the corn crop is made and has suffered but little damage save in extreme southern Texas—in the San Antonio region and south of there where it was cut short by drought during the month of June.

Probably a Record Oat Production.

Oats are particularly susceptible to damage by wet weather, but despite this the outlook now is for a yield of about 1,400,000,000 bushels closely rivalling the record breaking production of 1912. Of the minor grains it can be said that they are about of the average of normal production, and of potatoes that the crop will closely approximate that of last year.

Cotton Crop in Good Shape.

The reduction in the cotton acreage as compared with last year is approximately sixteen per cent., and combined with this is about forty per cent. decrease in the use of fertilizers; the use of these being largely confined to the South Atlantic states. A tentative long distance forecast on so uncertain a matter as the total yield of cotton indicates a production this year of about 12,000,000 bales exclusive of linters which will possibly run about 600,000 more bales. As a whole, the crop has done well and is in generally good condition, though needing rain in central and southern Texas. Owing to the wet season there are a number of complaints of boll weevil, though it is not possible yet even to approximate the damage done.

Even with low priced cotton, however, the situation in the South will be radically different from last year. Enforced economies have everywhere prevailed in the agricultural sections, old material and implements are being used in cultivating, and the cotton crop this year will be the cheapest raised in the way of production for many years. Consequently the South will be in a much better condition to stand low priced cotton this year than last.

Abundant Fruit Yields.

It can be said in general of fruit that it is both abundant beyond precedent, and very cheap. So much so in fact that it has not been generally profitable to the producer. However, in practically all sections the apple crop will be somewhat less than last year, largely due to the fact that apple trees never bear heavily two years in succession.

Peaches will probably have a larger yield than in 1914 and conditions are uniformly favorable in practically all sections where grown, though locally in some states there was hurt by cold and frost earlier in the year.

Crops of General Interest.

The outlook is for a larger yield of rice. Tobacco has shown great improvement and will probably make a slightly larger yield than in 1914. In many sections the first cuttings of alfalfa were entirely ruined by the rains, but there has been decided improvement in the second and third cuttings. Hay promises a large crop in most sections. In general forage for all live stock will be more abundant than ever before.

While the condition of hops is above the average in New York, the market is extremely dull for lack of demand is said to be caused by the spread of the prohibition sentiment in the West.

The peanut crop in Virginia, North Carolina, and Alabama is in excellent shape.

Train Dispatchers and Division Officers

By J. P. FINAN, TRAIN DISPATCHER, ATCHISON, TOPEKA AND SANTA FE RAILWAY.

NOTE: Taken from an address delivered at the 28th annual convention of the American Association of Railroad Superintendents held in San Francisco, on August 20th, 1915.

THERE is no test of man's ability in any department of the railroad, more severe than service as a train dispatcher. There is no position where so little consideration is shown for the rights and feelings or failures of men, as the train dispatchers, yet they are a class upon whom a great deal depends for the safe and efficient operation of the division and their duties are such that no man can perform them without meriting, at times, even just criticism.

The train dispatcher is always inclined to obey the rules and special instructions emanating from his superior officer, but is sometimes compelled to act upon his own judgment where a change, of which his superior officer is not aware, has taken place in conditions. It should be not only the right of the train dispatcher to judge the situation for himself, where conditions have changed since special instructions were issued, but it is his duty to do so. He hazards criticism and jeopardizes his position if he miscalculates conditions and disobeys when he should obey; but he takes a similar risk if he is not willing to assume responsibility for a change of plan, where conditions compel a change, which his judgment approves and regard for safety does not prohibit. He should be condemned if he permits the interest of his company to be jeopardized by failure to live up to the responsibility his position imposes upon him.

If he makes a mistake, which he sometimes does, he usually pays for it with usurious interest. He is often criticised and censured in a manner not conducive to safe and efficient operation. When such criticism or censure borders on abuse, as it sometimes does, it results in discontent and reduced efficiency. It unnerves the dispatcher and makes him dissatisfied, afraid and uneasy, and while in that mental attitude he is not capable of doing good work. And any official who thinks such a method is the best way to deal with his train dispatchers, thereby confesses his inability to wisely govern and efficiently direct other men of intelligence and moral rectitude.

When a train dispatcher must be criticised or censured, the object should be prevention and not punishment. He should be admonished or corrected in a way that will still leave him a useful and loyal employe whose sense of justice and self respect remain unwounded.

It costs railroads something to make a train dispatcher. If he has done good work for a year or so, he is too valuable a man to be driven out of the service by harsh treatment or thrown in the scrap heap because of some slight mistake or oversight.

The ever-present expectation of being called to account is a most wholesome check upon a train dispatcher. It makes him watchful and furnishes an incentive which inclines him to hold others to a strict accountability and carefulness in the discharge of their duties. But he expects and appreciates, and I may venture to say, deserves, consideration and courteous treatment. He is, as a rule, conscientious and tries to give the best possible service. There are times when he may be wrong; his actions indefensible, but the proper policy for division officials to adopt is one of consideration and not harsh criticism. Nothing is to be gained by harshly criticising the train dispatcher; he has his due share of human nature and is not to be controlled in that way.

Division officials should remember that the arbitrary power they exercise is delegated to them in the interest of the company and should never be wielded except to advance its affairs. The best interests of the company demand that you accord to the train dispatcher about the same kind of treatment you expect and wish to receive from your superior officers. When the train dispatcher is harshly criticised or severely censured, he loses his mental equilibrium, for a time, much to the detriment of the service. And if such treatment continues to be a regular thing, he becomes dissatisfied and begins to look around for another position.

We all know that the introduction into the service of a new or inexperienced train dispatcher carries with it numerous mishaps and losses. Under the most favorable circumstances he is in the position of a man called upon to act without possessing the proper knowledge to enable him to do so in the best way. It requires months of patient study and work before he is able to handle his division in a fully satisfactory manner.

It is difficult to estimate in dollars and cents the actual loss to the company that the introduction of a new or inexperienced train dispatcher produces.

These facts, however, do not prove that a train dispatcher should not be changed when occasion requires it, but they do prove that much care should be exercised to see that train dispatchers are treated with such fairness and consideration as will make them satisfied, thereby minimizing changes in the dispatching forces.

It is highly important that those who fill positions of responsibility should remain uninterruptedly in the service. The train dispatcher is no exception to this rule, without continuity of service on the part of its train dispatchers, a division can never hope to maintain a very high degree of efficient operation. Wherever this principle is practiced, you will find a safe and efficient service and where there are constant deviations from it, you will find just the reverse.

In railway practice, one of the most important things from the superintendent's point of view should be the character of the men he has about him. The building up of his force, to its highest efficiency, should be his constant aim and this he should do by proper recognition and promotion.

You may be doubtful of the qualifications of a man to take the place to which his rank entitles him, but generally it pays to run the risk. The effect of importing men or jumping one over the head of another, either temporarily or permanently, is demoralizing; besides it is astonishing how frequently a man, under new responsibilities develops capacities not shown, because not demanded, in a lower position, and serves efficiently in the higher position to which promotion has called him.

Frequent and abrupt changes of dispatchers should be avoided as they tend to disturb the minds of the men and lessen their interest in the service. They should not be censured or criticised needlessly. To do so is to unsettle the service and lessen the zeal and loyalty of the men. Mistakes that are not discreditable, or that do not result from inherent wrong, should not be judged too severely. Those who are supposed to pass judgment should be considerate of the conditions which contribute to bad results.

Failure to recognize these plain principles, of which I speak, has, upon two occasions, aggravated an attempt to form a protective organization for train dispatchers. In 1892 the attempt dismembered and disrupted the Train Dispatchers' Association. In 1911 a considerable number of members left the Train Dispatchers' Association, following the Baltimore convention, because that convention wisely and practically unanimously, defeated the resolution intended to change the constitution in a manner which would have made of the Train Dispatchers' Association a protective organization.

The cause of such dissension, remember, was not so much a question of wages or hours of service, but that a great many train dispatchers felt that they were not treated with the same fairness and consideration accorded other railway employes, nor that which was due their standing as train dispatchers, and smarting under a sense of discrimination looked towards labor unionism as a remedy, mistakenly, as I believe.

Train dispatchers easily adapt themselves to their income, whatever it may be and do so cheerfully and happily, so long as its permanency is assured. But when doubts develop, that moment they become afraid, uneasy, discontented and open to improper suggestions.

It may not be well known to you, but it is a regrettable fact, nevertheless, that a considerable proportion of train dispatchers are criticised and censured in such a manner that they do not feel secure in their positions. And while, perhaps, such fears may be largely groundless, they do exist and tend to disturb the minds of many train dispatchers, thereby lessening their usefulness. Such fears are based on the absence of a definite plan for insuring justice and fair treatment. It is the uncertainty of the situation and not the actual probabilities that unnerve these dispatchers.

They should be so completely contented with their positions that their minds would be wholly devoted to the work placed under their charge. Their positions should be so secure as not to cause them anxiety, so long as their work is performed in a creditable manner. And until this feeling is removed—until this apprehension is entirely eliminated from the lives of train dispatchers, railway operation will be the loser in the value of the service rendered by this class and the element so affected will still contend that concerted action on the part of train dispatchers, through some form of organized effort, is necessary in order to secure them the fair treatment they feel they deserve and should have.

There should be no more reason for a protective organization for train dispatchers than there is for such an organization for superintendents. Train dispatchers may not be formally recognized officials, on all railroads, but they cannot be divorced from the intimate relationship they hold with the division officials. It can be readily seen that their positions should be considered from every standpoint of official capacity and are not similar, in any sense, to the positions held by other employes who are affliated with and obligated to organizations demanding from them a loyalty paramount to the loyalty they owe to the company they serve.

It is only fair to admit, however, that some railroads do consider their train dispatchers as members of their official family and treat them as such, by according to them every kindness and courtesy that is consistent and possible to give, such as two weeks' vacation, at full pay, once a year; sending one dispatcher from each division to the annual conventions of the Train Dispatchers' Association, compensating such men for time and expenses while absent from duty on that mission; granting system annual passes to dispatchers and dependent members of their families, all of which fully establish a substantial recognition of the official status of the train dispatcher. And while such things may seem little from the standpoint of expenditure, they are great from the point of view of the train dispatcher and highly appreciated by him.

I point with pride to the Santa Fe as one of the great railway systems which have adopted this policy of dealing with their train dispatchers, and whatever it may cost them to maintain such a policy, they do not look upon it as an expenditure, but as an asset—an investment which yields large and important returns in increased loyalty and devotion to the service on part of their train dispatchers.

Is it not, therefore, worth while for all railroads to adopt some uniform method of dealing with train dispatchers and to inaugurate some definite plan which will insure justice and fair treatment? Then this "protection" idea which seems to be sticking in the minds of so many train dispatchers will soon fade away—those fears of arbitrary dismissal will soon be banished and you will have a force of train dispatchers contented with their positions, zealous and efficient in the performance of their duties and of unquestionable loyalty to the service.

The American Commerce Association

Note.—This new Department of the Railway World is devoted to the interests of the American Commerce Association, the national organization of traffic men, for traffic men, by traffic men. The object of the organization is to set standards of efficiency for employers and employes, as it is believed that the present tremendous waste of time and money in traffic work, demands employment of trained men. The Railway World is in entire sympathy with this movement, and it believes it will not only develop more harmonious relations between those who employ and those who operate the railways, but will serve to more fully inform the business men of the country regarding rate matters and thus enable them to more intelligently and economically employ our transportation agencies. This new department in the Railway World will discuss matters pertaining to traffic efficiency and the Traffic Efficiency Clubs of the Association, located in the various cities of the country. Under this heading practical railroad and industrial traffic matters will also be discussed.

INTERSTATE COMMERCE, RAILWAY TRAFFIC AND TRAFFIC MANAGEMENT WORK—A NEW PROFESSION.

ON the top floor of a grey stone building in Washington, seven men sit as judges. They wear no black robes. Around them is none of the clatter of court machinery. There is no expectant crowd, but before their bar of justice our mightiest railroad and industrial corporations bow in respectful obedience.

This body of men was given, by the recent amendments to the Interstate Commerce Law, probably more power over the development of zones of trade than any other like body of men in the world. This body of seven men is known as the Interstate Commerce Commission.

Under the Hepburn Law of 1906, they were given authority to establish a uniform system of freight rate schedules, making the railroad tariffs, the Federal Freight Rate Laws of the country. Under the Mann-Elkins Law of 1910, Congress gave them power over the adjustment of freight rates. This latter enactment, passed after seven months of bitter struggle, also gave to this Commission authority to investigate or to suspend rate advances. The amendment of 1913 created a Physical Valuation Committee, to establish the real value of railroad properties, for the purpose of determining reasonable rates.

The time has now arrived when men must specialize for a proper understanding of the regulation of transportation and the systematic and economic treatment of freight expenses. The need for the trained technical traffic expert—the traffic manager—is emphatically apparent, whenever any intelligent analysis is made of the effect of transportation upon the production and distribution of the goods of commerce.

A NEW FIELD OF OPPORTUNITY FOR COMPETENT MEN.

The greatest business in the World is Agriculture. The next greatest business, is freight transportation. Without transportation the 20,000 millions of dollars worth of agricultural products, would be worth no more than common junk. Transportation is King.

PRODUCTION, TRANSPORTATION, CONSUMPTION.

Transportation presents one of the three greatest problems confronting the business world today. Transportation is the connecting link between production and consumption, which are the two greatest factors of commerce and business.

The market price of an article is largely determined by the cost of carrying it from the place of its production to the market where it may be sold at a profit. Transportation practically controls the success or failure of every business enterprise. The Railroads are the arteries through which the commerce of the country flows.

There is practically nothing that we eat, drink or wear, that is not affected by transportation. Freight charges determine the character of the poor man's hovel, and the rich man's palace. They amount to about one-third of the cost of everything we buy.

Transportation is the largest single item of expense in the world. It is over 2,000 million dollars annually. This is over $25 for every man, woman and child in the United States. It is five times the surplus and capital of all National banks in this country. No nation on earth spends in a single year a sum which compares with it.

Five different freight charges are added to the selling price of aluminum cooking utensils before the goods reach the family kitchen. There is a freight charge, on boxite shipped from Missouri to St. Louis, where it is made into aluminum. There is another freight charge added when the aluminum is shipped from St. Louis to Niagara Falls, where it is made into bars and sheets. Another freight charge is added on bars and sheets shipped from Niagara Falls to New Kingston, Pa., where it is made into cooking utensils. Still another freight charge is added on the cooking utensils, when shipped from the factory to jobbers, in all parts of the United States and then another freight charge is added on the shipments from the jobbers to the retailers, where the goods are sold. There are therefore five separate freight charges on this one article, which enter into the selling price.

COST—AN ESSENTIAL FACTOR.

There is one word which rings a bell in every business man's brain. It is not a large word. It is only the important word "COST." Every concern today is confronted with the tremendous importance of "the lowest cost of goods."

It is a well established fact that if the cost of goods can be reduced *profits may be increased.* It also follows that if the cost is reduced, *the selling price," may be reduced.*

The cost of foods, therefore, is one of the most essential problems, confronting all business men today. It is very closely related to their success or failure. It depends largely upon three basis factors: (1) Cost of Production, (2) The Cost of Selling and (3) the Cost of Distribution or Freight Charges. The first two factors are usually definitely known. The third factor, namely, *freight charges,* is not always known, under the present conditions, by more *than one man out of one hundred.*

THE TRANSPORTATION MARKET NOW FIXED BY LAW.

For years shippers practically paid freight without question. Until recently the Transportation Market was not published. There was no way of knowing the lowest legal rates. But now all this has been changed. Transportation charges are definite to all those who know how to compute them. However, only a few have ever had a chance to learn how to determine legal freight charges and as a result millions of dollars are lost annually which could be saved.

A large Chicago steel company recently shipped a car of sheet iron from Chicago to Canada. The regular rate was $1.41. A special tariff on file in Washington, D. C., named a rate of 85c. This rate was the lowest legal rate, making a saving of $377.59 on the shipment.

MILLIONS OF DOLLARS WASTED ANNUALLY BY SHIPPERS.

An Indianapolis concern recently lost $106.34 on a shipment of furniture billed on a combination of local rates. A through Trans-Missouri rate published in Kansas City, Mo., could have been applied, but the shipper did not know that.

A Milwaukee concern not long ago lost $159 on a shipment of iron bedsteads to Dallas, Texas, because they did not know how to apply switching absorption tariffs, or a certain Interstate Commerce Commission Ruling, relative to minimum weights.

$77.74 could have been saved recently by a shipper on shipping "bottle caps," if the traffic man had only described the goods as "bottle caps nested."

It is alleged that one Pittsburg concern through an expert traffic man saved enough on freight charges alone to pay a 6 per cent. dividend on their total capital stock of $50,000,000. One shipper not knowing a "Bristol Combination Rate," paid $134 more than the law required on every carload shipped from Tennessee to Chicago.

Many rates are too high and others are too low. Both railroads and shippers are losing money. $682.43 was refunded recently to the New Richmond Roller Mills Company by the Soo Line because of an unreasonable rate charged on grain.

$50,000 was ordered refunded last year by the Interstate Commerce Commission in only eight cases of unreasonable rates presented by shippers. $1440 was found overcharged in two freight accounts.

Because of mis-routings, mis-description of shipments, non-application of commodity rates, failure to use exception sheets, non-use of Interstate Commerce Commission rulings, disregard of through rates, billing mixed shipments, and in many other ways, shippers have been losing thousands of dollars annually. They have paid the shipping clerk for what he *does,* not for what he should *know.* The traffic manager who knows how to save freight must be paid a salary commensurate with the services rendered.

The more progressive business men of the country are rapidly realizing that the traffic manager, far from being a luxury, is an economy and a necessity. This awakening to the possibilities of the traffic man's position in the industrial world is leading many ambitious men to qualify themselves for activity in this new field of endeavor.

Mr. J. C. Lincoln, Traffic Manager of the Traffic Bureau of the Merchants' Association of New York, once said: "Our transportation system occupies a place of first importance, constituting as it does arteries through which our commerce moves, and as approximately 90 per cent. of the commerce of the country, is interstate, it is highly important to the commercial and shipping interests that they should specialize for a better understanding of the laws and regulations pertaining to Interstate Commerce, governing the cost of transportation, which enters as such an important factor in the conduct of their business and the rights and privileges that are granted under the laws of the country."

RAILROADS LOSE MILLIONS.

Railroads as well as shippers are constantly losing money. Railroads no longer can publish their rates and regulations as they did in the good old days. They must do it as "Uncle Sam" wants them published. They must follow the specifications of the Interstate Commerce Commission. The system is now uniform throughout the United States on all railroads and very few men thoroughly understand it. As a result, millions of dollars are wasted annually by railroads through errors in routing, reconsigning, rating, classification, exceptions, extensions, special concessions, allowances and unreasonably low rates.

An expert auditor in five months, at New Orleans by going over the "OK'd" records of a certain railroad office, found over $60,000 in losses. In a St. Louis railroad office another expert unearthed $27,000 in errors and losses. Every revision and every claim department of every railroad is example of the inefficiency of men, who have made errors in original records, which must be revised at the loss of tens of thousands of dollars on the part of the railroad company. *It is obvious that it costs less to do a thing right in the beginning than to revise errors and explain why it was done wrong,* but the required number of men with the necessary technical information are not available.

Tremendous Losses Must Be Stopped.

Under present traffic conditions railroads, shippers, communities, and individuals are losing millions of dollars. Until recently nothing could be done. Before congress passed the recent amendments to the Interstate Commerce law providing for the specific publication of the railroad freight tariffs, there was no protection for anyone. But now the man who possesses the necessary technical information of traffic work can do marvelous things. Not long ago a consulting traffic expert saved his clients about $1000 on a year's shipments of galvanized wire by getting a rate adjusted.

Do you suppose shippers can afford to pay higher freight charges than required by law? Do you suppose that the railroads are going to carry goods for less than a reasonable charge? What is to be gained by one shipper paying another shipper's freight bills?

Eight out of every ten business concerns are losing freight money. 90 per cent. of those who are now responsible for the approximately $6,000,000 spent daily for freight charges don't know the legal rates, because they never had a chance to learn them. A statement to the Interstate Commerce Commission points out that about $100,000,000 could be saved by competent men. Who is going to qualify to save it? These losses must be stopped. Neither railroads, shippers, communities nor individuals can meet competition when these losses and discriminations are predominating and the result in many cases must be ruin and failure.

If one favored shipper can get his consignment of goods to market $75 cheaper than his competitor he can make that competitor lose $75 on every shipment until he puts him out of business. Then he can control the market.

If a combination of rates via a certain line of railroad is less than over another line, then the traffic will move via the cheaper route and the railroad will be actually packing out good money for hauling empty cars until it goes into bankruptcy. It is only by a technical knowledge of all the various factors which enter into transportation work that maximum profits for all concerned can be attained.

A New Profession Offering Exceptional Opportunities.

The successful development and protection of all business enterprises and railroads demands that all shall have equal rights. The Hepburn and Mann-Elkins Amendments to the Interstate Commerce Law protects shippers and railroads alike in legal, non-discriminatory rates. The federal law now requires every railroad to construct its tariffs in accordance with the specifications of the Interstate Commerce Commission. The railroad tariffs form the basis for all legal freight charges. They control the expenditure of millions of dollars daily.

This freight rate system established by Congress, the loss of millions of dollars on the parts of shippers and railroads and the demand for men, who have an accurate knowledge of Interstate Commerce and Railway Traffic under the new Federal Freight Rate Law, has created a new profession. This new profession is "INTERSTATE COMMERCE."

Until recently railroads were forced to make special rates to large shippers, resulting in crushing the smaller concerns out of business. The time has now come when both are regulated by federal law, but that law is not automatic. Every interest, in any way connected with transportation, must employ trained men.

It is a common fault of shippers whose attention is directed to transportation errors, to lay the blame at the door of the carriers. It is a wrong assumption to place upon the seller the responsibility of looking after the interest of the buyer. The railroads are selling and the shippers are buying transportation. It is the business of the shipper to look after his own end of the trade.

It is a human impossibility for railroad clerks, under present conditions, to correctly compute, at all times, the lowest legal rates on all the various articles shipped daily. Railroad clerks bill charges against freight according to the description given. It is unreasonable to expect them to look up technicalities which would result in the lowest rates. They haven't the time. In asking railroad clerks to look after the shipper's interest, you are asking them to serve two masters—and one of them pays no salary.

The growing demands for trained men, who know every angle of the Interstate Commerce business is very forcibly brought out in a letter written by an prominent business man recently to the Interstate Commerce Commission and reported by the Associated Press in leading dailies throughout the country.

The letter called attention to the important fact that "*Many rates which are concealed in the verbiage of the 500 tariffs which are filed daily are really more secret than the former 'secret rates,' although they may be technically published. Such rates are available only to large concerns which can afford to hire competent men to study the classification and schedules which are put out and filed with the Commission from day to day.*

Trained Traffic Men Command Large Salaries.

The size of a man's salary depends on just two things: (1) The kind of work he can do and (2) the market or line of business in which he can sell his services at the biggest price.

$411.10 were lost recently on a shipment of 10 cars of paving blocks from Montezuma, Indiana. to Miles City, Montana. This shipment was turned over to the railroad in the usual way at Montezuma, carried on to Chicago, and transferred to a western line, which delivered the goods to destination. A traffic expert would have known that Tariff ICC 2465 at the time of shipment contained a through rate to St. Paul and that Tariff ICC B-1910 named a commodity rate from St. Paul to destination.

How long would it take a man saving money at the rate of $41.10 per car to earn $200 per month and $100 profit monthly for his employer? If you can save or make the money, you can command the salary. A man is worth what he can earn. Do not delude yourself by thinking that hard work and long hours will result in advancement. Your success in life depends upon the quality of services which you have to sell and the market in which you can sell them at the biggest price.

A Chicago concern ships monthly, about 20,000 pounds of surgical dressings, absorbent cotton, and medicinal and porous plasters to California. They have been turning these shipments over to the carrier, which billed them out at $3.40 per hundred weight, the first-class rate in Western Classification. After making a study of the jurisdiction of tariffs on these shipments, a traffic expert discovered that one of Countiss' Trans-Continental Tariffs, applying from Group D contained a commodity rate on these goods of $2, saving $1.40 per hundred pounds. This resulted in a saving on these few items of $280 monthly, or $3,360 a year, ENOUGH TO PAY A TRAFFIC MANAGER'S SALARY OF $50 A WEEK AND PUT $1,000 IN THE TREASURY OF THE COMPANY.

Another case was on a contract of 1500 cars of iron pipe to be shipped to New Alberta, Canada. The regular rate was $1.31 per hundred weight via Twin Cities. In order to compete with other iron pipe manufacturers a Pittsburgh concern had to get into that territory on a cheaper rate, and a traffic expert; after carefully studying the jurisdiction of the tariffs, found a legal combination rate on Toronto via the Canadian Pacific, making a saving of 21c per hundred weight. 21c saved per hundred weight on 15,000 cars makes a total saving of $36,000, sufficient to pay all the traffic department expenses for a year and make a profit of $6,000 for the company.

The Mills Novelty Company, Chicago, shipped three carloads of slot machines to California. They called them slot machines on the shipping ticket, turned them over to the railroad in the usual way, and lost $2,030.40, because they did not know how to obtain the legal rate. Chicago is in Group D in Countiss Tariff I-M. At the time of shipment this tariff contained a special rate of $3 per hundred pounds. The railroad billed out the goods as double 1st class as described in Western Classification, making a rate of $6.80 per hundred pounds, or an overcharge of $3.80 on every hundred pounds shipped. The loss on this one shipment would pay a traffic man's salary for one year.

Many traffic positions pay $35, $50, $100 and up weekly. Some traffic experts are now receiving $5,000, $10,000 and a few as high as $25,000 annually. They are paid these large salaries because they can earn them in saving freight charges and in developing new business. *A man is worth what he can earn.* Interstate Commerce is a new field 'not overcrowded. It offers exceptional opportunities for rapid advancement to ambitious men.

TENS OF THOUSANDS OF TRAINED MEN NEEDED.

Tens of thousands of concerns were effected by the New Railroad Rate Law. About 50,000 of the largest corporations should employ competent traffic managers. Salaries should range from $2,000 to $15,000 per year. Then there are about 450,000 smaller shippers, which should employ Traffic Counsellors, giving special service to five or ten concerns. The income of such counselors should range from $3,000 to $15,000 annually.

Added to these there are about 3,000 cities which should have Traffic Directors. Salaries should range from $3,000 to $15,000 annually. Thousands of men with a knowledge of Interstate Commerce are needed by our large corporations, by the railroad companies for the Government service, also as rate clerks, billing clerks, revision clerks, shipping clerks, auditors and freight accountants. There are probably over 100,000 trained men needed with a knowledge of Interstate Commerce Railway traffic and Traffic Management work and very few men are available who know the business. The Government New Freight Rate System, established by the recent Federal Railroad Law, aims to place all shippers and railroads on an equal basis. Under this new law only competent men will be entrusted with the responsibility of handling traffic work and the millions of dollars which it involves.

Do you think if the buyer or credit man of a large concern did not know in two cases in ten the cost of the goods he is buying, or the credit he is extending, that he would hold his position very long, or that the business would prosper? Business concerns and railroads are waking up rapidly and are now asking for men who know scientifically how to stop freight money losses and build up business.

ONLY TRAINED MEN ARE WANTED.

It is estimated that the number of freight tariffs on file with the government under the Interstate Commerce Law, would make 4,000 volumes of 1,000 pages each. It would take a man 200 years to read them over once. No one man can compute the lowest rates without knowing the system.

All these estimated rates however, the thousands of millions of them, are now published in tariffs constructed uniformly under the specifications of the Interstate Commerce Commission, by the authority given them under the Federal Law. Any man may learn by technical training how to interpret them and determine transportation costs accurately.

EXPERIENCE ALONE NOT SUFFICIENT.

Men with years of experience in traffic work are not necessarily competent. Experience covers only a fraction of the required knowledge of Interstate Commerce. No one by experience alone could come in contact with all the angles in a dozen lifetimes. Thousands of dollars are wasted by "old time" traffic men not familiar with the new system.

Shippers must protect themselves and their customers in the lowest rates which affect the "selling price" OF THEIR GOODS OR COMPETITION WILL PUT them out of business. The Master of Freight Rates is the Master of Markets. Railroads likewise must have men who know every angle of the business, as the big corporations are always trying to get "every inch which the law will allow." Therefore, the trained man, the specialist, the Interstate Commerce, is a necessity to the shipper, the railroad and the Chamber of Commerce in the future. This makes Interstate Commerce, as a profession, preferable to many other vocations, because it is a new field, not over-crowded, controlled by the Federal Laws of the United States. It is as permanent as business itself. The Practical Traffic Training Service of The American Commerce Association, Chicago; the National Traffic Efficiency Organization of Traffic Men by Traffic Men for the higher efficiency of traffic men, thoroughly qualifies men for this new Interstate Commerce Profession.

Railway Developments in Europe

EXCLUSIVELY PREPARED FOR THE "RAILWAY WORLD" BY ITS LONDON CORRESPONDENT.

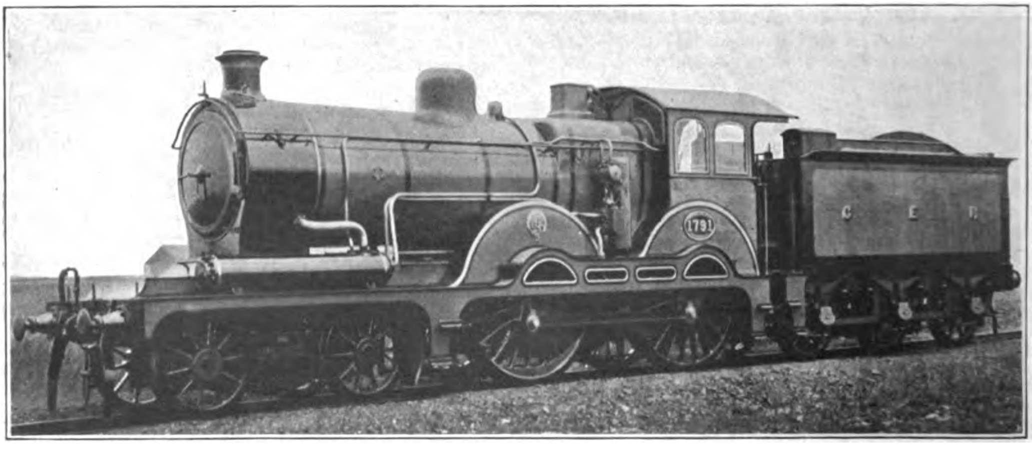
Interesting New Locomotives.

I GIVE with this article two photographs of, respectively, engine No. 1240 and engine No. 1791, the first being a superheater freight engine and the latter a superheater express locomotive. Both are fitted with Weir feed water pump and heater and both are installed by the Great Eastern Railway Company. It will be noticed that the heater is placed on the top of the boiler of No. 1240 and on the footplate at the left side of the smokebox in the case of the passenger engine. The left-hand injector is dispensed with, and a single cylinder double acting vertical pump driven by live steam is used instead. By this means water from the tank is delivered at high pressure to the heater, which contains a number of copper tubes. Dividing ribs in the end covers cause the feed water to flow through these tubes from end to end of the heater, and while doing so it is heated by exhaust steam from the pump and also from the blast pipe supplied to the heater by suitable piping. The water so treated is then led to a valve near the dome where it is sprayed into the boiler. Water of condensation is drained off from the heater and allowed to escape near rail level. The pump is capable of working very slowly, and by being kept constantly in action whilst the engine is running the maximum increase of temperature of the feed water is obtained, and stresses in the boiler due to rapid rise of water level are avoided. The object aimed at is of course to utilize as far as possible the heat of the exhaust steam, ordinarily lost to the atmosphere, and by returning to the boiler any escaping heat so intercepted to effect a certain amount of economy in fuel.

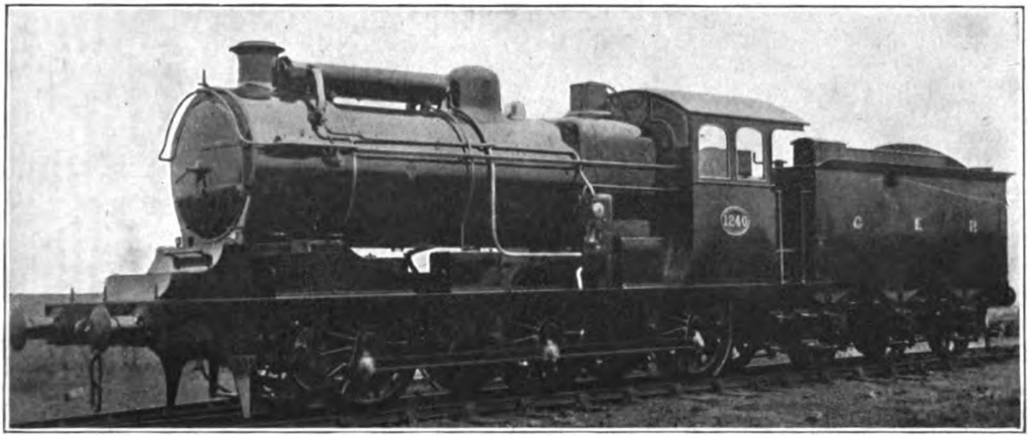
Locomotive Trends.

One often hears it asked if there is any general trend among our railway engineers in favor of any particular type of steam locomotive, or whether the general and continuous increase in size and power has left the distribution of types unaffected. The main type characteristic influenced by variation of size and power is the number and, to some extent, the grouping of the wheels. For many years—beginning with the dismissal of an old-time locomotive superintendent for refusing to abandon four-wheeled engines—the standard main-line passenger types were the "single-wheeler" and the "four-coupled," each with a single axle or a bogie in front, the single-wheeler only having a trailing axle. Both types were exceedingly tenacious of life, and with good reason. Less than four-coupled driving wheels would not deal with the heavier of the trains that the long Victorian epoch was accustomed to, and for the lighter trains less than a single driving axle was naturally impossible; while an extra, trailing, carrying wheel was so advisable as to be practically a necessity, although in America there once flourished a type of engine which managed to do without it.

Heavier train loads called for greater tractive effort, and consequently, for greater adhesion between the wheels and the rail. Of the two methods of obtaining that, the plan of putting greater weight on the driving axles very soon reached its safe limit, and the plan of increasing the number of driving wheels to carry the extra total weight to some extent took its place. It is a regrettable necessity, because not only does it increase the cost of construction, but it results in—all other things being equal—a much less "free-running" engine. As illustrating this, one cannot do better than quote the figures got out by Mr. Ivatt when he was in charge of the Great Northern Railway locomotive department. He found that while at ten miles an hour an eight-coupled goods engine gave 7.6 tons on the draw bar and a single-wheel passenger engine less than four tons, at forty miles an hour the single-wheeler was still giving a pull of rather more than two tons, while the pull of the eight-wheel coupled machine had fallen to less than one ton. Of course these figures are only true for the particular class of engines which yielded them, but they show clearly why the single driving axle was not allowed to disappear from locomotive politics



GREAT EASTERN RAILWAY SUPERHEATER EXPRESS PASSENGER ENGINE.



Great Eastern Railway Superheater Freight Engine.

while the slightest hope lingered of getting sufficient adhesion with it.

In considering the present trend of types, the four-coupled engine with two or four weight-carrying wheels in front, is the natural basis of comparison, and, according to the very interesting and complete tables for 1914 given in the current issue of *The Engineer*, the Midland Railway possesses the greatest number of this type, having 393 with a leading bogie. The Great Western comes next with 368. The London and South-Western has 302, and the London and North-Western 290. Of four-coupled engines with only a single leading axle, the Midland again heads the list with 275. Of that other great standard type, the six-wheeled coupled goods engine, the Midland also has the greatest number, namely, 1495. The North-Eastern has 777, and the North-Western 732.

In the larger and more modern types of engines the London and North-Western has most of the six-coupled with leading bogie—"Pacific"—type. It has 354 of these, or 14 more than in 1913. The Great Northern, while having only 34 of this class, stands top with regard to the "Atlantic" type or four-coupled, with leading bogie and a single trailing axle, of which it has 116. As between 1913 and 1914 the greatest change in numbers of any type is the increase of 63 in the type having six-coupled driving wheels and a leading bogie; and the most interesting case of very light change in the "Atlantic" type which is stationary on the Great Northern, its greatest sponsor in this country, though it shows an increase of 13 on the North-Eastern, which now has 55 such engines.

More Ambulance Trains.

The bright suggestion that the two ambulance trains built at a cost of £65,000 by the London and North-Western Railway to the Government's order for service in France should be on exhibition brought five thousand visitors to Euston station on July 22d and 23d. The complete train would require too much platform room, but the most interesting ambulance vehicles were there, and the visitors—most of them women—were able to see how the staff lives and works and how the hundred and fifty patients are accommodated. The train, whose carriages all connect so that on a straight line one can look along eight hundred feet of corridor, is steam-heated and electric-lighted throughout, while every car is provided with electric ventilating fans. The two kitchens, marvels of compact equipment, aroused much enthusiasm. They will supply the wounded men as soon as they are brought on board with hot drinks and soup, to be followed later with delicious stews and more substantial fare. The treatment room has medical stores, a long table, and all requisites for operations. These are necessary. There are linen rooms, a pharmacy, and a kitroom for the officers, who have a very comfortable mess room, matched by a second mess room for the four army nurses assigned to each train. The staff consists of forty-two, including the cooks—who have their own quarters—and the orderlies, who lodge four in a compartment and have a long cheerful dining car. Tanks in the roof supply the wards and kitchen with hundreds of gallons of water. The special feature of these trains—I do not think any other train possesses it—is the separate ward for infectious cases fitted to the brake van. The arrangement of the berths in the wards set aside for lying down cases is also new. The berths, which can be raised like those in an ordinary sleeping car, are arranged in tiers of three, with the advantage that thirty-six men can be comfortably settled in each ward—and the disadvantage that those in the top berth cannot see out of the window. As in all the specially built trains, these cars are loaded through doors at the side instead of through the open windows, which was the old style. The two trains just finished are part of a fleet of twenty-four which carry British wounded from the front to the base hospitals and the ports in France.

A 200 H. P. Rail Motor Coach.

For certain classes of British railway passenger traffic the internal combustion engine is held by many locomotive experts here to present distinct advantages. This is particularly the case on branch rural lines with light traffic. There are also numerous instances of railways abroad in districts where proper supplies of coal and water for steam locomotives are expensive and difficult to get. So far, however, there has only been a sporadic development of the rail motor car, whether of the petrol or the mixed petrol and electric type. The large power petrol engine has not yet been so fully worked out as the smaller motor for road vehicles, and the problem of transmission of the power from the engine to the rail wheels, owing to the greater weight and higher speeds, presents more difficulties than in the case of road machines. However, a motor coach with an 8-cylinder V type petrol engine of 200 h. p., made by J. Taylor, and Sons, London, just built to the order of the New Zealand Government Railways, promises well. The coach is to carry passengers and also to haul a 25-ton trailer up a gradient of 1 in 40 at 15 miles an hour, the gross load being about 60 tons (of 2240 pounds each). The maximum speed on the level will be just over 40 miles an hour. In the ordinary way the coach will haul two trailer cars. The engine appears to be very efficient, as it is estimated that the petrol consumption will be of the order of 200 ton-miles per gallon. What is known as the Thomas transmission system will be employed—a method well and favorably known in theory for several years, but so far not very widely adopted. It involves the use of two electrical machines and a planetary gearing. On top speed all the power is transmitted direct mechanically, but in starting and in climbing gradients part of the power is transmitted mechanically and part electrically. By this means great flexibility and efficiency are obtained.

The Railway Service of British India

THE steadily increasing prosperity and wealth of British India is entirely due to the continual growth of the railway system. The following figures show the development at a glance:

	Miles	Increase
1903	26,956	....
1904	27,560	604 Miles
1905	28,295	735 “
1906	29,097	802 “
1907	30,010	913 “
1908	30,576	566 “
1909	31,490	914 “
1910	32,099	609 “
1911	32,899	800 “
1912	33,484	585 “

The total increase has been 6,528 miles, equal to an average of 725 miles annually. Owing to the varying needs of different provinces, density of population; mineral and manufacturing concentration and other factors the gauges differ considerably. This is not so disadvantageous as it might be in other countries, as interchange of traffic is a minor consideration. The proportions of gauges to the total mileage in 1903 was as follows:

Of the standard gauge, 5 feet 6 inches, the length was 14,477 miles; in 1912 this has been increased to 17. 189 miles; an addition of 2712 miles. Of metre gauge 3 feet 3½ inches, there was a length of 11,421 miles in 1903 which was increased to 14.165 miles in 1912; an addition of 2744 miles. There were in addition in outlying districts special gauges of two feet and 2 feet 6 inches. with an aggregate mileage of 1058 miles in 1903, increased to 2130 miles in 1912, an addition of 1072 miles. Gauge unification of such vital importance in European countries is of no moment in Asiatic countries, where the conditions are so different. The capital outlay upon Indian railways at the close of each year has been as follows:

		Increase
1903	$1,091,568,000	....
1904	1,113,316,000	$21,748.000
1905	1,147,257,000	33.941.000
1906	1,188,547,000	41,290.000
1907	1,253,980,000	65,433.000
1908	1,318,132,000	64.152.000
1909 .:...........	1,375,464,000.	57,332,000
1910	1,405,190,000	29,726.000
1911	1,440,216,000	35,026,000
1912	1,488,480,000	48,264,000

Within the decade the gross profits have increased in the most satisfactory manner, encouraging the government to persevere in their enlightened policy of extending railway construction. In 1903 they amounted to $115,656,000 and in 1912 the gross receipts were no less than $197,280,000. an increase of $81,624,000. The working expenses for the corresponding years were $54,753,000 and $96,509,000; whilst the net earnings were for 1903 $60,903,000 and for 1912 $100,771,000. The ratio of the working expenses to the traffic receipts was 47.5 per cent. for 1903 and 48.9 per cent. for 1912. The tendency of Indian railway expenses; like those of every other country, is to increase, in consequence of the rise of wages. No reasonable objection can be taken, a well paid staff means efficient working of the railway system and must result in a higher average level of intelligence. The average return obtained upon the capital expended was 5.5 per cent. in 1903 and 6.7 per cent. in 1912.

A New Switzerland Railroad

ANOTHER heretofore sequestered valley in the Canton of Valais has now been brought into regular railroad communication with the outerword, i. e., the Dala Valley, with one of the oldest watering places in Switzerland, Leukerbad or Loueche-les-Bains, situated at the foot of the celebrated Gemmi Pass. The thermal springs of Leuk, with 93-123 degrees of Fahrenheit, were already known to the Romans and are in these present days justly famous for their beneficial qualities in cases of rehumatism and such like complaints.

The construction of the railway for which concessions has been obtained in 1899 and 1902 was

CHARACTER OF THE COUNTRY THROUGH WHICH THE NEW ROAD WILL OPERATE.

finally begun in 1912 and the official inauguration which had been planned for last year took place on July 3d last, the European war making this delay necessary.

It is a narrow gauge electric line with a total length of 6½ miles. About 3¾ miles are of the adhesion and the rest of the rack-and-pinion system. The minimum radius is 30 meters and the maximum gradient is 160 per cent. Use has been made of the old post road for a distance of 2½ miles. Noteworthy technical features of the railway are three tunnels and three bridges of average length.

The railway starts from the station Leuk-Susten on the Simplon line of the Swiss Federal Railroads system and traverses immediately the Rhone on a newly constructed bridge. Passing the little city of Leuk, which is situated on a vine-clad hillside, the line begins to ascend the valley of the Dala, high above the river, thus affording a splendid view of the Valaisan Alps. Stopping places have been created for the two hamlets of Albinen and Rumeling and a regular station has been allotted to the village of Inden.

After Inden the line follows the old Post Road high above the Dala gorge; Russengraben, a third stopping place is passed and in another 15 minutes the train reaches the Baths of Leuk. While the trip by diligence required four hours, the railway covers the same distance in one hour and six minutes.

Financial

Railroad Gross Earnings for the First Half of 1915.

THE "Commercial and Financial Chronicle," in its issue of August 14th, reviews the results of railway operations during the first half of the calendar year 1915, as indicated by gross earnings for that period. The figures presented show the half year to have been a poor one and, in spite of the fact that business conditions in the United States, stimulated by the large war orders from abroad have considerably improved industrial conditions, within recent months, no reflection of the fact is found in the revenue returns of the country's railroads. In the West and Southwest, some instances of considerable gains are recorded, but these arise from the fact that last season's abundant harvest contrasted with the very poor harvest of the previous season. The great railroad systems of the East, which are dependent mainly for their traffic upon general manufacturing and industrial activity, give no evidence of revival in trade sufficient to effect very materially the course of traffic or revenues.

Another curious fact may be noted. Western agricultural interests have been exceedingly prosperous. They had excellent crops last season and by reason of the huge foreign demand for the same they have been able to realize almost fabulous prices for the same. It may be contended that the increased consumptive power of such an important part of the population should have stimulated general industrial activity, but the fact is it did not. The comment is general that good crops and the prosperity of the agricultural classes lie at the foundation of business activity and the statement is accepted as almost a truism. The real fact is that there are other things that are a great deal more important than good crops. On the present occasion the railroads themselves have continued in a state of extreme depression. Not only have they had to curtail their new capital outlays by reason of their impaired credit, but they have had to cut down their expense accounts in every direction, first because of the continued loss in traffic and gross revenues, and secondly, because any further great shrinkage in net results might have been attended with very serious consequences, and hence had to be avoided at all hazards.

Stated in brief, the loss in the gross earnings of the railroads for the first six months of 1915 reaches $41,423,035, as compared with the first six months of 1914, the total of the gross in 1915 having been $1,388,472,003 and in 1914, $1,429,895,038.

The following table gives the comparisons for the first six months of each year back to 1897.

Jan. 1 to June 30 Year	Earnings Year Given	Earnings Year Preceding	Increase or Decrease
1897	$473,084,924	$475,293,350	-$2,208,426
1898	536,375,776	477,035,482	+59,340,294
1899	556,326,364	523,231,211	+33,095,153
1900	643,342,643	565,393,511	+77,949,132
1901	704,538,792	642,321,514	+62,217,278
1902	749,023,005	701,688,284	+47,334,721
1903	847,034,318	745,087,476	+101,946,842
1904	794,929,168	810,131,983	-15,202,815
1905	910,027,258	846,375,228	+63,652,030
1906	1,049,355,572	922,696,020	+126,659,552
1907	1,185,196,030	1,050,957,676	+134,238,354
1908	987,005,757	1,184,091,548	-197,085,791
1909	1,157,508,747	1,034,778,038	+122,730,709
1910	1,338,344,306	1,165,299,494	+173,044,812
1911	1,284,282,115	1,310,839,862	-26,557,747
1912	1,329,686,550	1,278,674,015	+51,012,535
1913	1,470,556,113	1,334,458,737	+136,097,376
1914	1,379,095,321	1,463,696,430	-84,601,109
1915	1,388,472,003	1,429,895,038	-41,423,035

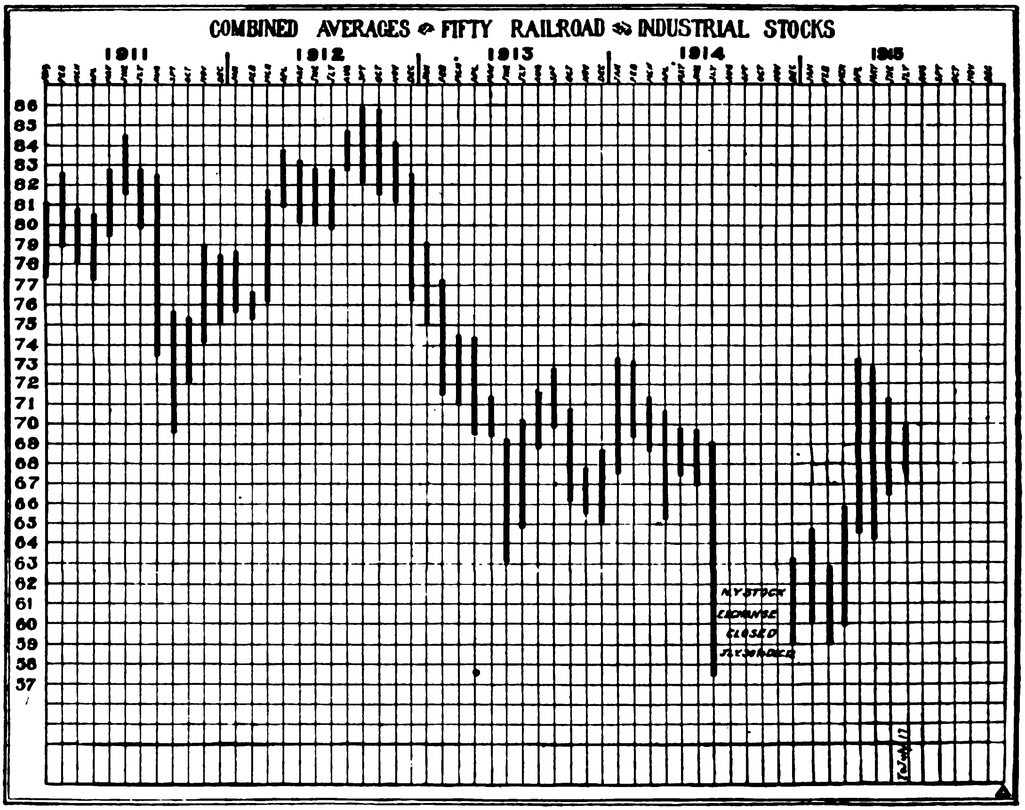
Railroad Gross Earnings for July.

THE "Commercial and Financial Chronicle" also presents its preliminary statement covering gross earnings for July. Like the results for the first six months' period, July's figures were far from satisfactory, losses still being the predominant characteristic of the returns, both as regards the individual roads and the result as a whole. The truth is, the railroad industry continues to lag behind, and the preliminary statement registers a loss in the gross for the month of somewhat over $7,000,000. This represents a ratio of decrease of over ten per cent and emphasizes the unsatisfactory nature of the showing, inasmuch as the present loss is additional to a loss of the same roads in the corresponding month of last year.

The following table shows the principal changes in gross earnings on which the preliminary statement was based:

	Increases.
Chesapeake & Ohio	$341,970
Western Maryland	109,556
Yazoo & Miss Valley	73,043
Buffalo Roch & Pitsb	67,665
Representing 4 roads in our compilation	$592,234

	Decreases.
Canadian Pacific	$2,594,000
Great Northern	1,242,292
Illinois Central	695,259
Southern Railway	581,614
Missouri Pacific	543,000
Canadian Northern	388,200
Louisville & Nashville	350,684
Wabash	241,114
Grand Trunk	226,071
Mobile & Ohio	210,235
Missouri Kansas & Texas	195,781
Grand Trunk Pacific	a117,414



Minn St Paul & S S M	99,905
Chicago & Alton	89,239
Cinc New Orl & Tex Pac	64,541
New Orl & Nor Eastern	40,482
Texas & Pacific	39,805
St Louis Southwestern	38,000
Denver & Rio Grande	36,900
Colorado & Southern	31,948
Representing 20 roads in our compilation	$7,826,484

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a These figures are for three weeks only.

The Recovery of the United States Steel Corporation.

THE business and earnings of the United States Steel Corporation are rapidly recovering from the exceedingly low level to which they had fallen about six months ago and all indications point to a continuance of the great activity that now prevails. As recently as January last, owing to the adverse conditions then prevailing, net earnings were the lowest of any month since incorporation, having amounted to only $1,687,000; but the recovery since then has been so considerable that for June they reached $11,343,000, which is the highest recorded since October, 1913. In large measure, of course, the better results now being obtained are due to work arising directly or indirectly from the war, but in no small degree the need of the railways of the United States to replenish their stocks of materials, which had been allowed to run down owing to the various uncertainties in the freight rate situation, and the purchase of new equipment in anticipation of future growth of traffic, have brought additional business to the corporation. A further factor of considerable importance has been the recovery in prices of iron and steel products that has accompanied the increased demand—a rise that is still continuing and the full effect of which will only become apparent as the months pass, inasmuch as work is only now being done upon new contracts placed at the higher prices. To indicate the rapid recovery that is taking place in the earnings of the corporation as a result of the various favorable factors referred to we append the following statement:

Monthly Net Earnings of U. S. Steel Corporation.

	1915	1914	1913	1912	1911	1910
January	$1,687,000	$4,941,000	$11,342,000	$5,243,000	$5,869,000	$11,316,000
February	3,639,000	5,656,000	10,830,000	5,427,000	7,181,000	11,617,000
March	7,132,000	7,397,000	12,254,000	7,156,000	10,469,000	14,684,000
April	7,286,000	6,921,000	13,073,000	7,509,000	9,413,000	13,415,000
May	9,321,000	6,846,000	14,555,000	8,847,000	9,590,000	13,229,000
June	11,343,000	6,691,000	13,593,000	8,746,000	9,106,000	13,527,000
July	—	7,476,000	12,937,000	9,322,000	8,750,000	12,132,000
August	—	7,585,000	12,657,000	10,583,000	10,710,000	13,133,000
September	—	7,215,000	12,856,000	10,158,000	10,062,000	12,100,000
October	—	5,581,000	11,430,000	12,485,000	9,159,000	10,512,000
November	—	2,798,000	7,392,000	11,121,000	6,947,000	8,229,000
December	—	2,557,000	4,262,000	11,576,000	7,049,000	7,161,000

Net earnings for the June quarter were better than for any three-monthly period since the September quarter of 1913, and compared most favorably with the very poor results of the two quarters ended December, 1914, and March, 1915. In each of these latter periods interest charges and sinking and depreciation fund appropriations were only a little more than covered, and in order to maintain the dividend on the seven per cent Cumulative Preferred stock, calling for $12,610,000 for the half-year, the profit and loss surplus had to be drawn upon to the extent of $11,127,000. For the past quarter, however, the profit has not only been sufficient to provide for the dividend on the Preferred stock, but there has been a surplus of $8,268,000, equal to a dividend at the rate of 6½ per cent per annum for the quarter on the Common stock, although, of course, no dividend has been paid. Between the end of September, 1913, and March, 1915, the profit and loss surplus was drawn upon to the extent of $23,455,000 for the purpose of paying dividends upon the Preferred and Common, but by means of the surplus for the past three months the net withdrawal has been reduced to $15,187,000, and it is likely that the profit and loss surplus will be almost if not fully restored to its former level before any steps are taken to restore dividends on the Common stock.

The results for the first half of 1915 afford no guide as to the earnings and profits for the current six months, all indications pointing to monthly net earnings being secured considerably in excess of the $11,343,000 of net earnings secured in June last. The corporation's plants are now operating almost to the limit of their productive capacity, for, whereas in November and December last the mills were operating at only about 35 per cent, they are now being worked at about 93 per cent of capacity. This factor has to be borne in mind in considering the unfilled orders on hand, which, at 4,678,196 tons at the end of June, were larger than for any period since February, 1914, and compared with only 3,324,592 tons at the end of November, 1914. Further, only a commencement had been made at the end of the first half of 1914 upon the vast orders from Europe, while the corporation did not until July begin to reap benefit from high-priced contracts, by far the greater proportion of the output up to June having been on account of contracts placed at the relatively low quotations existing in the early part of the year. Still another indication of the increased demand for iron and steel products is available from the figures of the monthly output of anthracite and coke pig iron, the production for July having been larger than for any month since June, 1913. In July the average daily output amounted to 82,800 tons, compared with 49,000 tons in December last To show the improvement in the demand for pig iron we give the following statement of monthly production as compiled by the "Iron Age":

Production of Anthracite and Coke Pig Iron.

	1915 Tons	1914 Tons	1913 Tons	1912 Tons
Jan.	1,601,421	1,885,054	2,795,331	2,057,911
Feb.	1,674,771	1,888,670	2,586,337	2,100,815
Mar.	2,063,834	2,347,867	2,763,563	2,405,318

April	2,116,494	2,269,955	2,752,761	2,375,436
May	2,263,470	2,092,686	2,822,217	2,512,582
June	2,380,827	1,917,783	2,628,565	2,440,745
July	2,568,000	1,957,645	2,560,646	2,410,889
Aug.	—	1,995,261	2,545,763	2,512,431
Sept.	—	1,882,577	2,505,927	2,463,839
Oct.	—	1,778,186	2,546,261	2,689,933
Nov.	—	1,518,316	2,233,123	2,630,854
Dec.	—	1,515,752	1,983,607	2,782,737
Totals .	—	23,049,752	30,724,101	29,383,490

Lehigh Valley's Annual Report.

THE Lehigh Valley Railroad Company earned a net income of $6,322,444.96 for the fiscal year ending June 30, last, a decrease of $734,214.73 under last year. The 61st annual report of the railroad company was made public recently. It shows operating revenues for the fiscal year of $42,525,962.02, an increase of $355,315.24 over last year. Operating expenses were $29,947,387.54, a decrease of $140,517.66, giving a net operating revenue for the year of $12,578,574.48, an increase of $495,832.90.

In comparing these figures with those of last year, it should be recalled that a $685,080 dividend on Temple Iron Company stock owned by the Lehigh Valley was included in its year's income by order of the Interstate Commerce Commission. Naturally, there is no such dividend this year. Comparison of the figures for this year with last and previous years also is complicated by a rule put into effect a year ago by the Commission, changing bookkeeping methods in certain accounts. To form a basis for comparisons, the figures given out in 1914 have been adjusted to the new method. Particularly interesting, in the operating expenses is a $421,871.94 reduction in transportation expenses. That the company's equipment is being kept to the best possible standard is indicated by an increase of $537,698.13 in that account.

After paying four quarterly dividends of 2½ per cent each on the common and preferred stocks, amounting to $6,060,800, and making various adjustments, the profit and loss account of the company on June 30, 1915, showed a credit of $23,692,716.88.

No increase in the funded debt of the company was made during the year. Thus far the improvements which have been made in connection with the new freight and passenger terminals at Buffalo have been financed out of the current cash resources of the company. It is proposed, however, at a later date to make a specific issue of bonds to cover the major portion of this expenditure.

Capital obligations, consisting of collateral trust bonds and equipment trusts to the amount of $2,800,000 were retired during the year.

The year's revenue from the handling of merchandise freight amounted to $16,005,501.45, an increase of $463,615.55 over last year. The revenue from the transportation of coal and coke amounted to $19,195,755.50, an increase of $667,509.06, as compared with the previous year. The average revenue per ton was 116.30 cents. Last year it was 114.43 cents. The number of tons carried one mile was 5,326,328,902, an increase of 140,128,336, and the revenue received per train mile was $4.10, an increase of one cent a mile. The average trainload of freight was 620.72 tons.

A remarkable feature of the report, and one indicating the business depression of the last year, appears under the head of "other income," being known as "hire of equipment." In other years this has shown a credit—in 1914 it was $325,440.01, but in the year just ended, a debit balance of $68,807.74 was shown, a decrease of $394,247.75. Hire of equipment represents mainly the use of freight cars of other lines on the Lehigh Valley and of Lehigh Valley cars on other lines, and the figures indicate the general stagnation in the movement of freight.

Passenger earnings during the year showed a considerable decrease, due, it is said, principally to the suspension of immigration business, a large part of which annually has gone to the Lehigh Valley. The earnings from passenger traffic amounted to $4,043,799, a decrease of $751,348.44 from the previous twelve months. The total number of passengers carried was 5,206,972, a decrease of 522,070 under 1914. The average revenue from passengers per train-mile was 1,875 cents, a decrease of .068 cent

"Your company has pursued a fairly aggressive policy in the matter of expenditures for the development and improvement of its property," says President E. B. Thomas, in the report. "The appropriations for the year were also very liberal for the maintenance of the permanent way and equipment. Your board of directors has believed it to be for the best interest of the stockholders to pursue this policy of liberal maintenance and conservative development for the future, notwithstanding the fact that the revenues were somewhat affected during part of the fiscal year as a result of the disturbed business and financial condition of the country resulting from the European situation."

Annual Report of the Buffalo, Rochester and Pittsburgh Railway.

THE annual report of the Buffalo, Rochester and Pittsburgh just made public, indicates gross earnings of $10,200,000 for the fiscal year ended June 30th, a reduction of about 12 per cent, compared with the previous year, yet in excess of gross for any similar period to the last three years, and the company has earned a safe margin over its full dividend requirements for the year.

In attaining this result, it did not depart from its policy of maintaining roadway and equipment at its usual high standard, 35.9 per cent of its operating revenue being expended for maintenance.

With a reduction of $1,356,000 in gross earnings compared with the previous year, the management has succeeded in offsetting more than a million dollars of this amount in decreased operating expenses, two-thirds of which was in conducting transportation, the ratio for the year being 33.17 per cent, a reduction of 3.06 per cent.

In addition to having expended more than a million dollars for new equipment during the year, the company constructed a modern warehouse of reinforced concrete in its Rochester terminal; eliminated grade crossings at Saxton Street, Rochester, and McVean Road, Scottsville; built a new freight and passenger station at Sykes, Pa.; new power house at Du Bois; new steel bridge carrying the Boulevard and trolley tracks over the Dock Branch; reinforcement of steel viaduct 270 feet in length at Silver Lake Junction, also viaduct at Cascade Park, 780 feet in length, to carry the heavier locomotives the company recently purchased.

Decrease in July's Capital Issues.

NEW financing announced by railroad and industrial corporations in July up to last evening indicate a total of $63,753,000 comparing with $94,826,000, a decrease of $31,073,000. The complete returns will be published after the close of the month. As customary, the totals include large sums raised to pay off or refund maturing obligations. Of the current month's financing railroads furnished $23,198,000 of the amount, as against $47,890,000. The industrial total was $40,555,000, as against $61,046,000.

The following table compiled by "The Journal of Commerce" classifies the month's financing (actual issues) and gives comparisons with a year ago:

Railroads.

	1915	1914	Change
Bonds	$18,455,000	$45,090,000	-$26,635,000
Notes	4,743,000	2,550,000	+2,193,000
Stocks	....	250,000	-250,000
Total	$23,198,000	$47,890,000	-$24,692,000

Industrial Corporations.

	1915	1914	Change
Bonds	$10,875,000	$23,526,000	-$12,651,000
Notes	250,000	750,000	-500,000
Stocks	29,430,000	22,660,000	+6,770,000
Total	$40,555,000	$46,936,000	-$6,381,000
G'd Total..	$63,753,000	$94,826,000	-$31,073,000

The following are the figures for seven months:

Railroads.

	1915	1914	Change
Bonds	$349,930,300	$386,769,200	-$36,838,900
Notes	140,451,800	296,893,000	-156,441,200
Stocks	5,485,000	69,419,600	-63,934,600
Total	$495,867,100	$753,081,800	-$257,214,700

Industrial Corporations.

	1915	1914	Change
Bonds	$170,069,500	$171,802,000	-$1,732,500
Notes	84,718,500	84,756,000	-37,500
Stocks	81,272,500	167,387,000	-86,114,500
Total	$336,060,500	$423,945,000	-$87,884,500
G'd Total..	$831,927,600	$1,177,026,800	-$345,099,200

Expansion of the Seaboard Air Line.

ANNOUNCEMENT has been made of the consolidation of several subsidiary railways with the Seaboard Air Line Railway and the formation of a new company to be known as the Seaboard Air Line Railway Company. It was also announced that the new company would execute a mortgage authorizing a bond issue of $300,000,000.

The Seaboard Air Line Railway Company, the new concern growing out of the consolidation, explained that the mortgage issued would be a first and consolidated mortgage. A banking syndicate, headed by the Guaranty Trust Company, has already purchased $22,893,000 of the new bonds, which bear interest at the rate of six per cent and will mature in thirty years. The lines added to the system are the Carolina, Atlantic & Western, which is a consolidation of the North & South Carolina; the Charleston Northern, the South Carolina Western. These operate a total of 416 miles.

The consolidation gives the Seaboard Air Line Railway Company an entry into Charleston. The consolidated line will be extended from Charleston to Savannah by the immediate construction of eighty-five miles of railroad with a maximum grade of only three-tenths of one per cent. The new territory is rich and fertile and is highly productive of tobacco and cotton.

St. Paul Common Dividend Reduced.

THE Directors of the Chicago, Milwaukee and St. Paul and their August meeting, declared a semi-annual dividend of two per cent upon the common stock, a reduction of one-half of one per cent from the last previous payment of 2½ per cent. The regular semi-annual dividend of 3½ per cent was declared upon the preferred stock. Both dividends are payable September 1st to stock of record August 12th.

After the meeting had adjourned, President A. J. Earling issued the following statement:

"The action of the Board of Directors upon the dividend seemed to them expedient in view of the decrease in operating income for the fiscal year which has just closed, which decrease is attributable to the following conditions:

"1. General business stagnation and the competition of the Panama Canal, both of which affected particularly the long haul traffic yielding the maximum revenue.

"2. A radical increase in the taxes paid amounting to $640,000, together with a large increase in the charge for depreciation of equipment and unusual expenditures in connection with the preparation of the Western advance rate cases, freight and passenger.

"3. The long established policy of the company to maintain the property at its customary high standard, in preference to sacrificing its physical condition.

"Confronted with this situation as the result of causes entirely beyond the control of the management, no other dividend action seemed justifiable."

Wabash Sold for $18,000,000.

ON July 21st, a Purchasing Committee of the Joint Re-organization Committee of the Wabash Railroad's creditors bought the entire $220,000,000 system, with all its assets and liabilities, for $18,000,000.

The Wabash Railroad was sold at public auction under foreclosure to satisfy a $41,000,000 mortgage held by the Equitable Trust Company of New York. Robert Goelet and Henry Rogers Winthrop, of New York, the purchasing committee of the creditors, presented the only bid offered for the road, and as Judge Chester H. Krum, special master of the sale, accepted the bid, he said to the Eastern financiers: "And now gentlemen, may God have mercy on your souls."

Immediately after the sale it was announced that E. F. Kearney would be retained as president of the new Wabash Railroad. The sale is subject to the approval of the Federal Court.

Although it was generally expected in railroad circles here that the lowest acceptable bid would have to be in the neighborhood of $30,000,000, Judge Krum in accepting the $18,000,000 bid said this amount was sufficient to pay for the outstanding receivers' certificates, interest on these certificates and expenses of the sale.

Missouri Pacific in Receivership.

BENJAMIN F. BUSH, president and chairman of the boards of the Missouri Pacific and of the St. Louis, Iron Mountain and Southern railways, was appointed sole receiver of the two lines by Circuit Judge Adams at Woodstock, Vt., on August 17th.

Edward J. White, general solicitor of the Missouri Pacific, was appointed counsel to the receiver and George C. Hitchcock, a St. Louis attorney, was appointed master.

After his appointment as receiver, President Bush gave out the following statement:

"The receivership of the Missouri Pacific-Iron Mountain lines, considering the financial condition of both companies, was the only alternative left to preserve the property and the various interests for the benefit of the creditors, the stockholders and the public.

"The condition which necessitated this receivership was beyond my control. The indebtedness of the property in large measure was created before my connection with the companies. While the physical condition of the properties has been materially bettered within the last four years, it has been impossible to create a financial condition indispensable to their preservation without receivership."

The Commonwealth Steel Company, which brought the receivership's suits against the Missouri Pacific Company and against the St. Louis, Iron Mountain and Southern, agreed with the railways to urge the appointment of President Bush as sole receiver.

It developed that the receivership proceedings were agreed to because of the refusal of some of the security holders to agree to the reorganization plan recently announced.

The following statement has been issued by the Missouri Pacific Board of Directors:

"When the plan of readjustment, dated July 1, 1915, was announced, it was hoped by the boards of directors of the Missouri Pacific and the Iron Mountain companies that securities would be promptly deposited in sufficient amounts to insure success of the plan and to thereby make it possible to secure adequate financial assistance to meet the interest payment of September 1, 1915. Reports of depositaries under the plan show, however, that the deposits of securities are wholly insufficient for this purpose. The Missouri Pacific Company is without sufficient funds to meet its September interest payment, aggregating almost $2,000,000.

"The Iron Mountain Company is already in default in respect to interest due July 1st and in payment of other obligations and is without means to remedy such defaults. Neither company is in a position to obtain the funds required to meet its financial requirements of the near future. Accordingly and in order to preserve the assets of the two companies and in the interest of their creditors and stockholders, the Missouri Pacific and Iron Mountain have consented to the appointment of a receiver and are pleased that the Court has appointed Mr. Bush."

The time for the holders of Missouri Pacific securities favoring the reorganization plan to deposit their securities has been extended to October 15th, according to an announcement made to-day on behalf of the readjustment managers of various security holders' committees.

"It is hoped that the period of receivership will be of short duration," reads the statement, "and that the delay and expense incidental to a receivership and foreclosure will be reduced to a minimum by the prompt deposit of securities with various depositaries, to the end that the system may soon be returned to its owners with its credit re-established and with funds provided for its future requirements."

Operation

A Six Months' Record of Promptness.

WHEN the Pennsylvania Railroad System ran the Broadway Limited, the 20-hour train from New York to Chicago, a distance of 908 miles, every day for the first six months of 1915, and it arrived at Chicago "on time" 91.7 per cent of the time, the accomplishment represented one of the many results of the intelligent efforts of 200,000 employes working to give the public the kind of service it wants.

On only 15 days out of 181 days in the first six months of the year was train No. 29, the Broadway Limited to Chicago, over two minutes late. Train No. 28, which is the corresponding train from Chicago to New York, was "on time" every one of the 181 days with the exception of 19. It was "on time," or not over five minutes late, over 90 per cent of the time.

The Pennsylvania Railroad operated 68.444 passenger trains in the month of June, 1915, and 90.9 per cent of them arrived at their destinations "on time." Ninety-four per cent made the schedule time on their runs.

A Perfect Freight Record.

DURING the month of June, 1915, the principal fast freight trains operated by the New York Central Lines between New York and Chicago arrived on time every day, making a perfect record. The record for the month of July was almost as good, there being but one delay and that only 30 minutes.

The Car Situation.

THE American Railway Association has issued a statement giving a summary of freight car surpluses and shortages for August 1, 1915, with comparisons, as follows:

TOTAL SURPLUS.

August 1, 1915	265.131
July 1, 1915	276.421
August 1, 1914	198.928

The surplus for August 1, 1915, shown above includes figures reported since the issue of Statistical Statement No 6.

The decreases in surplus under July 1, 1915, are chiefly in Groups 2 and 4 (east) in coal and gondola cars. There are also decreases in the surplus of box cars in Group 5 (southeast) and Group 8 (central) which are offset by an increase in the surplus of box cars in Group 6 (central north).

TOTAL SHORTAGE.

August 1, 1915	888
July 1, 1915	785
August 1, 1914	2,333

The figures by classes of cars follows:

Classes.	Surplus.	Shortage.
Box	132,342	352
Flat	12,666	99
Coal and gondola	74,488	414
Other	45,635	23
	265,131	888

Results of Sanitary Regulation in Dining Car Service.

THE efforts of the Pennsylvania Railroad to insure that no person with even a tendency toward a communicable disease shall have anything to do with serving food on its trains and in its restaurants have had results. A quarterly report just made to the company of an examination made of all the Pullman employes who serve food in buffet broiler Pullman cars on the Pennsylvania Railroad, shows that not a single one of the 65 employes was found to have any trace of a communicable disease.

The Pennsylvania Railroad, in January, 1913, established a rule to have a physical examination made of all dining car and restaurant employes every three months. Later it was ordered that these examinations should be held every 30 days. Now the rule is to examine every one of these employes at least every 30 days.

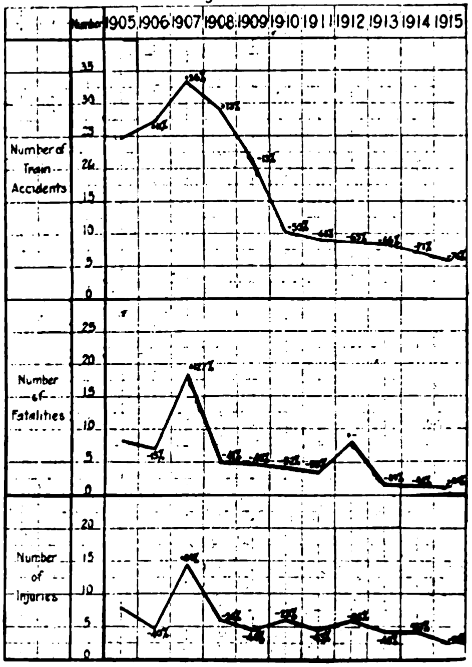
These examinations cover every employe who has anything whatsoever to do with the preparation or serving of food. Dishwashers, kitchen helpers, cooks and waiters, both white and colored, must undergo a rigid examination, and only a 100 per cent report on their physical condition will permit their remaining in the service.

If a Pennsylvania Railroad dining car or restaurant employe becomes disabled through any cause, he is not permitted to return to work until he receives a "Certificate of Ability" from one of the company's doctors.

In order to surround the service with every possible precaution, there are provided at "layover points" for dining car stewards, waiters and cooks, special lodgings with clean linens, clean beds, and every sanitary protection. These rooms receive regular, careful and minute inspection.

The Pennsylvania Railroad is applying to its dining car service the principles of safety which it is enforcing in every department. In its restaurants and dining cars it is endeavoring, through the exercise of every sanitary measure, to safeguard the health of passengers and its employes.

SOUTHERN PACIFIC COMPANY
Train Accidents & Resulting Casualties Per Million Locomotive Miles
Fiscal Years Ending June 30, 1905 to 1915, Incl.



Safety Record of the Southern Pacific.

THE Southern Pacific Company has closed the fiscal year ending June 30, 1914, without a single passenger having been killed in a train accident on its lines. The import of such record may be gained from these facts:

During that period the company carried 37,000,000 passengers;

It operated 10,000 miles of track (Pacific System);

It ran 52,000 passenger trains every month, or 624,000 during the year.

It carried 3,700 passengers per mile of track operated.

In 1913 the Southern Pacific in competition with all other roads was awarded the Harriman Memorial Medal for being the safest American railroad. Since 1908 it has carried over eight billion passengers a distance of one mile, with but one fatality in a train accident. The latter occurred early in 1904 at Ione and was caused by defective equipment on a foreign line car. The accompanying chart, prepared in the office of Chairman of the Executive Committee Julius Kruttschnitt, shows the progress being made by the comapny in minimizing the number of train accidents. In the fiscal year just closed there were 76 per cent less train accidents than in 1905, and 70 per cent less injuries.

Safety Results on the Norfolk and Western.

THE following diagram illustrates in a graphic manner, the results which have been obtained through the safety movement on the Norfolk and Western Railroad since its beginning in 1913 to the end of 1914. The figures apply only to injuries to employes and cover a twenty-month period. Merely to show that fewer accidents have occurred during one period than during another does not always prove achievement in accident prevention, because the less the volume of business and the smaller the pay roll, the fewer the men exposed to injury; the comparison shown here is particularly interesting to those employes who have given their support to the Safety Movement, because it shows that real progress has been made.

From August, 1913, the high point, with its 463 accidents, to December, 1914, with its 172 accidents, there is a decline of seventy per cent. Based on the month of May, 1913, pay roll and injuries are together, but gradually diverge, and at the end of 1913 the pay roll has declined seven per cent while accidents have gone down twenty-five per cent, a gain of eighteen per cent in favor of the accident line; at the end of 1914, the pay roll has declined to seventeen per cent while accidents have gone down fifty-eight per cent, a further gain in accident reduction of forty-one per cent.

During 1913, a yard employe was injured for each $2,800 worth of yardmen working; during 1914 one yard employe was injured for each $4,600 of yard pay roll, an improvement of sixty-four per cent.

During 1913, a division employe was injured for each $6,600 worth of division employes working; during 1914 one division employe was injured for each $8,000 of pay roll, an improvement of twenty-one per cent.

During 1913, a line shop motive power employe was injured for each $2,600 of pay roll; during 1914 one was injured for each $3,600, an improvement of thirty-eight per cent.

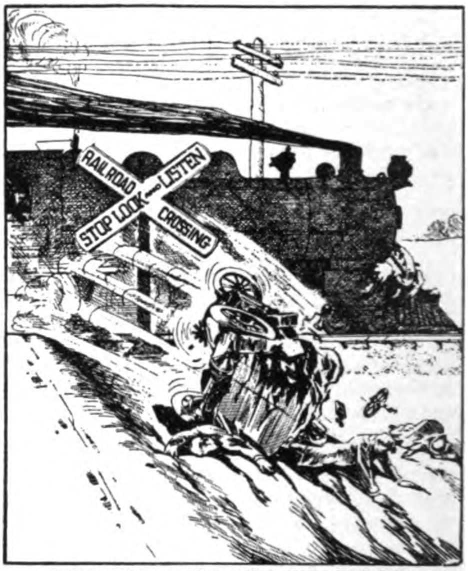
When the Safety Movement was inaugurated on the Norfolk & Western System, one employe was being injured for, approximately, each $3,600 worth of pay roll. The last month covered by these figures—December, 1914—shows one employe injured for each $7,000 worth of pay roll.

Automobiles at Railroad Crossings.

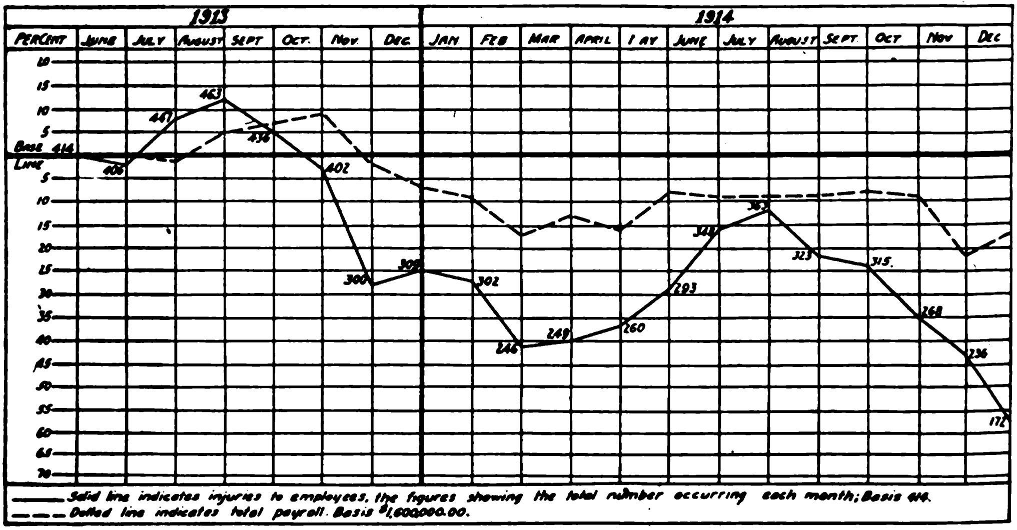
THE extent of automobile traffic on the Long Island and the necessity for co-operation by motorists in an effort to prevent accidents at railroad crossings, are interestingly shown by the result of a special count of the

STOP, LOOK AND LISTEN

THE DANGER TO AUTOMOBILES AT GRADE CROSSINGS



OBSERVE THE WARNING—DON'T INVITE THIS FATE.



Fluctuation of total injuries to employees on the Norfolk & Western System for 20 months ending December 31, 1914, as compared with total pay roll traffic taken on a single day recently. The results have been announced by James A. McCrea, general manager of the Long Island Railroad in the following statement:

"The number of motor cars that are driven across our tracks is almost incredible. A count was made last Sunday at two crossings. At the Merrick road crossing in Springfield 9,408 automobiles passed between midnight Saturday and midnight Sunday. Of these 4,245 were eastbound and 5,163 westbound. At the Barnum Island road crossing on our Long Beach branch we counted 4,739 cars passing in the same period, of which 2,620 were eastbound and 2,119 westbound.

"In the single hour from 11 o'clock A. M. to noon on Sunday, 845 motor cars passed over the Merrick road crossing. This is at the rate of more than fourteen cars per minute, or about one every four seconds.

"The cars counted at these two crossings were, of course, only part of the total number that were operated on Long Island last Sunday. Furthermore, nearly all of them must have crossed our tracks at other points not once but several times in the course of a day's run. It is obvious that the railroad is powerless to safeguard this enormous traffic unless the motorists themselves use proper care when crossing the tracks. The great reduction in accidents this summer is gratifying evidence that this fact is being appreciated.

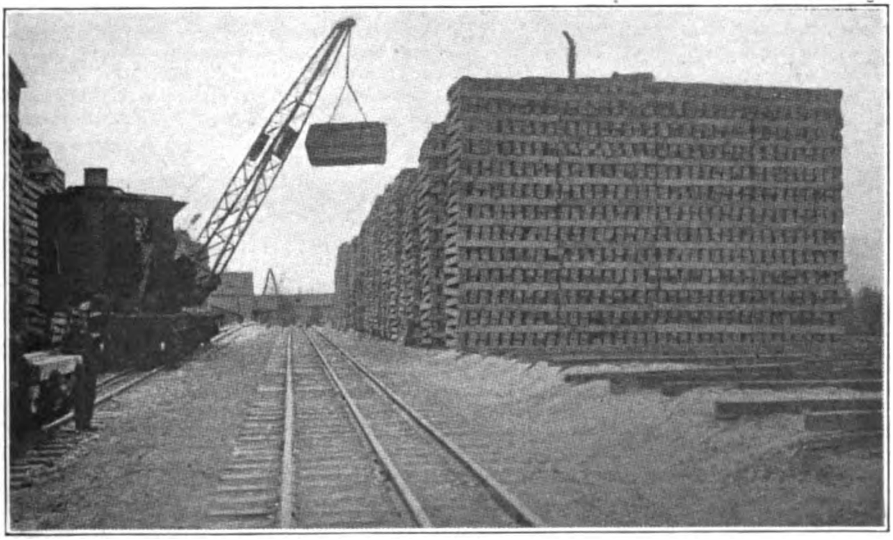
Mechanical

Timber Preserving Plant of the Buffalo, Rochester and Pittsburgh Railway.

THE accompanying photograph gives a partial view of the storage yards of the timber preserving plant of the Buffalo, Rochester and Pittsburgh Railway at Bradford, Pa.

This plant is thoroughly equipped for the creosote treatment, under either the partial-cell or full-cell Bethell process, of cross ties, switch timber, piling and lumber, with an annual capacity of 400,000 cross ties or their equivalent in board feet of other timber. The main building, which contains the machinery, is 113 feet long, of steel-frame construction with brick walls and corrugated metal roof. Fire protection is afforded by an underwriter's fire pump, with a capacity of 500 gallons per minute, located in a separate brick building and hydrant lines running throughout the entire storage yard; also connections for an independent supply of water from the city mains. A loading platform, 20 feet wide and 300 feet long, is provided with two 24-inch gauge tracks on top connecting with the other yard tracks, all of which are laid with three rails to accommodate both standard and narrow-gauge equipment. Ties and other timber are handled to and from the cylinder on pressed-steel cars designed for the purpose and moved by an 18-ton narrow-gauge locomotive. The treating is done in a steel cylinder 98 feet 4 inches long inside diameter, supported on steel saddles resting on concrete piers. The cylinder is designed for a working pressure of 250 pounds per square inch, in which the creosote is maintained at temperatures between 180 and 225 degrees Fahrenheit during treatment. There are two 100,000-gallon storage tanks for creosote outside of the building and in the building a 22,000-gallon measuring tank with steam coils on the inside to maintain the creosote at 180 degrees. In the yard, the untreated cross ties are handled principally on the piecework basis, but all treated material is taken direct from the tram cars and placed either in storage or on cars for shipment by use of a 15-ton Brown hoist, which is also used wherever advantageous in handling untreated material.

Ties for treatment purchased off the line are inspected by the company inspectors at the shipping point at time of loading, forwarded direct



Unloading Treated Ties from Tram-Cars to Storage Piles -

to the treating plant, and placed in standard piles for seasoning. As the ties are being unloaded a galvanized nail with a letter indicating the kind of timber is driven at a designated place in each tie. Ties purchased along the line of road are delivered on the company right-of-way and placed in standard piles bearing the name of the owner; they are afterwards inspected, and when sufficiently seasoned forwarded to the preserving plant for treatment; to these specie nails are also applied when unloaded at the latter point. The white oak and chestnut ties (which we do not treat) delivered on the right-of-way are shipped direct from there to points where required for placing in track.

Further, in connection with tie renewals, to secure uniform practice prevent the removal from track of ties before their safe service is past, and at the same time properly distribute renewals, ties for renewal are marked by special inspectors reporting direct to the division engineers. In the spring, when the frost is out of the ballast, these inspectors, after conferring with roadmasters, are accompanied by the section foreman and inspect one mile of main track on each section, in order to allow section forces to begin renewals, indicating each tie to be removed by placing over it, on the rail, a paint mark designated for that season. The inspection is then completed both in main tracks and sidings, the inspectors making daily reports to the division engineer and roadmaster showing number and location of ties marked for renewal. Inspectors are given statement in advance showing track which is to be raised, also where new steel is to be laid and track reballasted, so their inspecting and marking may be made accordingly. After the entire line has been covered, the inspectors spend the remainder of the season in checking up the tie renewals. The marking of ties by an independent inspector does not relieve the roadmaster or section foreman of the responsibility for the safety of their track, and in case of difference of opinion the inspector is sent back for reinspection.

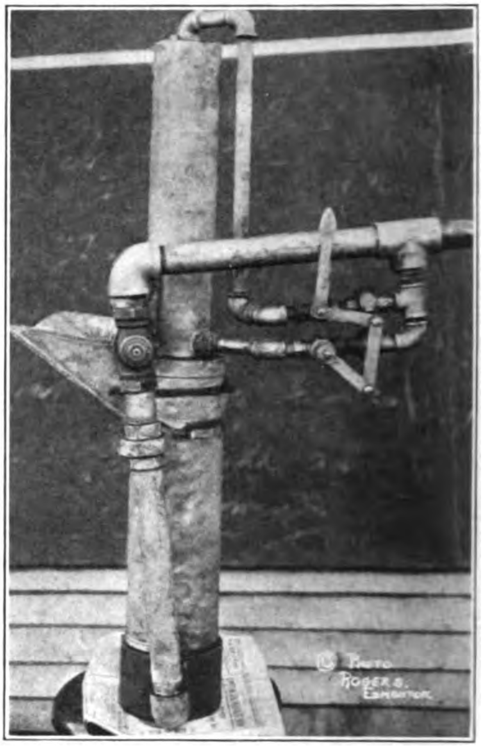
When treated ties are placed in the track, galvanized dating nails are driven, showing the year they are put in service.

A Tie Tamping Machine.

THE American railroads pay out annually many hundreds of thousands of dollars for the tamping of ties in connection with the maintenance of their lines. This work, as is well known, has always been handled by men in the shape of section and extra gangs, the ties being tamped with the use of the shovel.

James A. Royal, for many years a section hand, section boss, extra gang foreman and later roadmaster on various American roads has recently completed and patented an invention which he claims will do away entirely with the section man and other workers formerly employed upon this maintenance work.

The invention is in the form of the machine seen in the accompanying illustration. Working by compressed air supplied from a specially equipped motor car the ballast is injected under the ties after the track has been jacked up in the usual manner. Eight of these machines are worked from one motor car, two to a tie at a time. The inventor claims that two of these machines will do a mile of work a day, at the same time at a price from 80 per cent to 90 per cent less than paid out for manual labor.

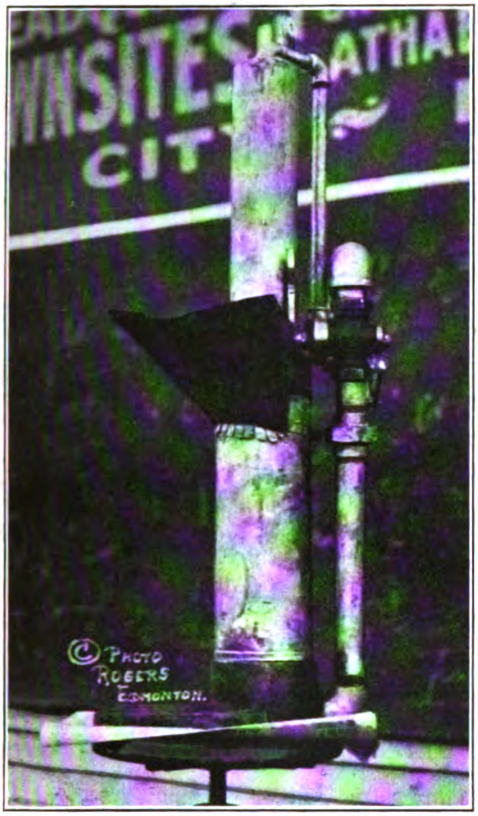


BALLAST INJECTING MACHINE.

The idea of the device is to inject ballast under the ties by the means of forcing the ballast into the air as the air escapes through this machine underneath the ties, at the end, instead of at the sides of the ties as now done by manual work. The new way leaves the roadbed intact. The air drives the ballast out through the toe of the machine which is shown in photograph No. 2. The toe of this machine has an aperture which is adjusted to the various sizes of gravel used for lifts from one-eighth to two inches in depth.

The machine operates as follows: Over end of pipe shown at extreme right of photograph one, the air line from motor car is fitted. The lever upon the upper part of the machine operates two valves. When lever is up, lower valve is open allowing the compressed air to pass into the upper cylinder forcing piston in cylinder up to top. As that piston comes up it drives the piston head in the lower cylinder up to the top. At this moment the ballasting material is poured into vent in lower part of machine, funnel for which is seen at extreme left of Photograph 1. The lever is then brought down closing lower valve and opening the upper one thereby forcing the piston head down upon the material. Air lever 2, Photograph 2, over funnel, is then opened upon material in lower cylinder, driving it out through toe of machine under tie.

As the machine stands to-day made of steel it



Another View of Ballast Injecting Machine Showing Funnel Through Which Ballast is Poured.

only weighs forty-seven pounds, which is even lighter than a track jack. By manufacturing the different parts of aluminum the inventor expects to cut this down to twenty-seven pounds and have the machine still maintain its wearing qualities. The present machine costs $15 to manufacture. A motor car to operate eight machines will cost $1,200. One motor car with eight machines is intended to handle one hundred and twenty-five miles of track. For the working of these eight machine men, four laborers to shovel material—one man feeding two machines—two jack men, one leveller, two flagmen and a foreman will be required. The estimated cost of a mile of track in the ordinary manner of maintenance is $250 a mile. The inventor claims with his machine to do same amount for $100 a mile maximum, in most cases less, eight machines will do four miles a day.

The machine was tested and approved of by officials of Canadian Northern Railway at Edmonton on April 9th and 13th, 1915. In place of the regulation motor car a locomotive engine was substituted to supply the air.

Record Renewal of Bridge Ties on the Lehigh Valley.

A REMARKABLE record in the renewal of bridge ties has just been made by the Maintenance of Way Department of the Lehigh Valley Railroad on its bridge across the Susquehanna River at Towanda, Pa. The two main tracks there are carried over the river on a steel bridge of fourteen plate girder deck spans, thirteen of which are 129 feet 6 inches overall, and one 125 feet 3 inches; the total length of the structure is 1808 feet 5 inches. The five spans nearest the center are on a tangent, but the remaining spans at either end are on 3 degree 30 minute curves of reversing direction.

There are 1522 ties on each track. These ties are 8 in. x 12 in. by 12 ft. Together with the elevation blocks, consisting of 14,500 feet B. M. there is a total of 160,612 feet B. M. of timber in each track. The track is of 100-lb. rail, while a double 90-lb. guard rail is laid on each track.

All of the wood in the eastbound track on this bridge was renewed in the actual working time of twelve hours.

It has been the plan to complete the work in every detail in one day—between 6 A. M. and 7 P. M.—but at 1.30 o'clock on the day selected a terrific wind and rain storm began. It came so suddenly and raged with such fury that the gangs were unable to work. In fact, for a while, they had to hold on or lay down to keep from being blown off the bridge. Later it was necessary to send portions of the forces on motor cars in

Lehigh Valley Railroad Renewing Ties on Bridge Over Susquehanna River by Means of Locomotive Cranes.

both directions to look after points where trees had been uprooted, wires were down, tracks were under water, and small slides had occurred.

Work was resumed about 5.30, but half an hour later the storm broke again with such violence that no more work could be accomplished that day. At eight o'clock the following morning work was resumed, and by one o'clock every detail, including full tie plating and spiking, and the installation of the metal guard rails had been completed. Between the old bridge ties the tops of the girders previously had been cleaned and painted, and as the old ties were removed the tops of the girders under the old bridge ties were similarly treated.

During the progress of the work temporary crossovers were installed at each end of the bridge to provide for rounding trains; the pilot using a motor car.

Locomotive cranes were used to remove the old ties, to place the new ties, and to handle all the rail. The new ties were on twelve cars, arranged in piles in order, each tie being numbered, so that each tie, of each sling of ties, when placed on the girders was within a few inches of its designated location. The cars of new ties were attached to the locomotive cranes, and the old ties loaded on them as the new ties were unloaded. The result was that when the job was completed there were no old ties and timbers to pick up.

The total cost of the work, including the putting in and taking out of the temporary crossovers was $708.90, or 46 cents per tie. Had it not been for the storm this cost would have been reduced to the minimum of 31 cents a tie.

Working on a single branch line recently the same department renewed the ties on a 1,279 foot bridge at a cost of 20.4 cents per tie, but no temporary switches had to be installed in this case. The easterly end of the bridge was on a tangent, and the westerly end on a 7 degree curve. Using a locomotive crane to handle both the old and new ties, 359 ties, 8 in. x 12 in. x 11 ft. and 6 ties 8 in. x 12 in. x 14 ft. were renewed. The new ties were in rotation piles, ten being placed on the girder at one time.

Similar records for economy in the work have been made on other branch line bridges.

Terminal Improvements

Baltimore and Ohio's New Freight Station at Brooklyn.

THE Baltimore and Ohio Railroad has opened a large new freight station in Brooklyn, New York. The new station occupies fully 200 feet of bulkhead space and offers great advantages to shippers from the Wallabout Market. Freight received at the station previous to 4.30 in the afternoon is shipped out the same evening. Under the former arrangement freight received by the railroad company after 3.30 P. M. or at 4 o'clock at the latest, was held until the following morning.

Freight passing through the new station is handled by car floats and fast through service is maintained in connection with the new terminal to and from all points West and South.

Baltimore and Ohio to Remodel Pittsburgh Station.

THE Baltimore and Ohio Railroad has prepared plans for a complete remodeling of its passenger station at Smithfield and Water streets, Pittsburgh. Work will be started at once and completed as rapidly as possible.

The entire first floor of the present building is to be used as a general waiting room. The mezzanine floor, now used for the offices of the general superintendent and his force, telegraph office, yard master's office and conductors' room, will be removed. This will give a general waiting room 60 feet wide by 76 feet deep, with a ticket office facing the general waiting room and the concourse. The concourse will be 32 feet deep and 60 feet in width.

There will be space in the general waiting room for telegraph office for the public, cab stand and information bureau, and telephone booths in addition to the ticket office.

Leading off from the general waiting room will be men's room with toilet facilities, and women's retiring room with toilet facilities.

From the concourse baggage and parcels can be checked, the baggage checks being sent to the baggage room at the end of the train shed through pneumatic tubes. The news stand will face the waiting room concourse and the exit concourse. Electric-lighted train indicators will be provided to give information in regard to the departure of trains.

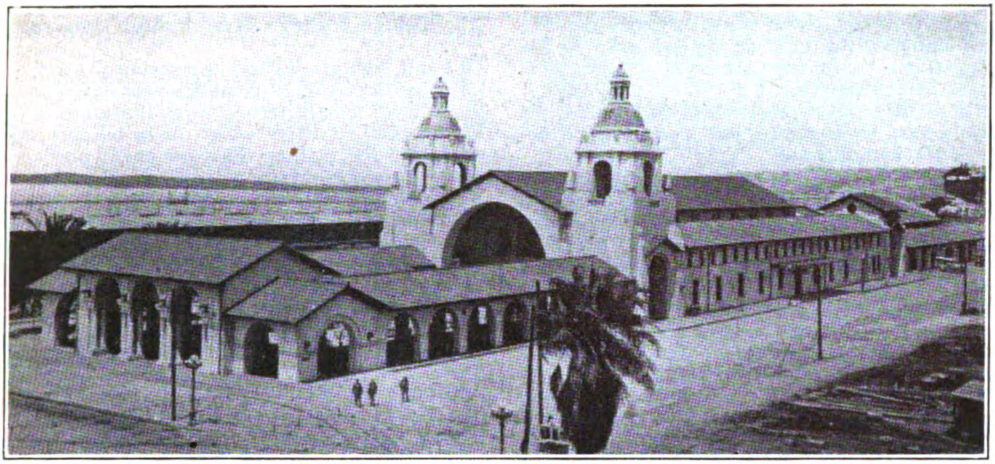
On the front of the building there will be a marquise, with roof projecting sufficiently to cover automobiles, so that passengers can be landed on the walkway in front of the building without inconvenience during rainy weather.

The second floor of the station will be remodeled to take care of the general superintendent's force which will be moved from the mezzanine floor.

The baggage, mail and express will be located in new quarters arranged for by renovating the present outbound freight house. In the second floor of this building will be provided offices for the telegraph department, division operator and yard master.

The Santa Fe's New Depot at San Diego.

IN the completion of its new passenger station at San Diego, the Santa Fe System has given this beautiful Pacific Coast city one of the finest depots in the country. The new station is not only artistically beautiful, but is built to accommodate the growing greatness of San Diego. The building represents the adoption of Spanish Colonial architecture to the commercial requirements of a railway station. In employing this style of architecture, the problem presented by the large masses of masonry and the comparatively small windows, was largely solved by the employment of an open air room or patio which was described in the July issue of the "Railway World." This waiting room and a long covered concourse, uniting the different elements of the station, have made it possible to follow this style of architecture.



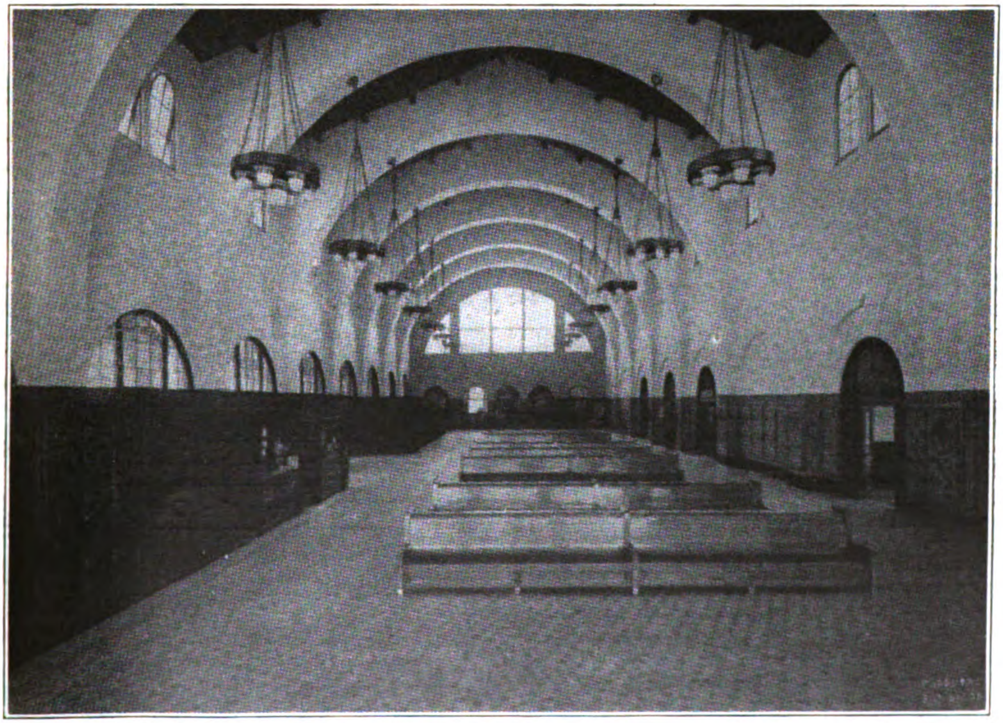
THE SANTA FE'S NEW DEPOT AT SAN DIEGO.

In its design, an honest attempt has been made to erect a building that appears to be what it is, a railway station, and yet which has the characteristics of the early California architecture; in other words, it was the aim of the architects to design a station as one of the Franciscan Fathers would have designed it had railway stations been built in his day.

The main approach to the station is from Broadway through the patio or open-air waiting-room. This has been made the principal front of the building, although at one end. At the end of the patio, which thus becomes a sort of fore court, is a large arch, below which are the main entrance doors to the general waiting-room. On the other side are the retiring rooms, toilets and the stairs to the railway offices, which are on the second floor. There is also a carriage entrance on this side.

At the extreme end of the waiting-room is the Harvey lunch-room which, with its dependencies, terminates the passenger portion of the station.

Along the side of the building next the tracks is the covered concourse, which consists of an arcade six hundred and fifty feet long and twenty-seven feet wide and connecting the passenger station with the baggage and express



A SECTION OF THE SPACIOUS GENERAL WAITING ROOM OF THE SANTA FE'S NEW STATION AT SAN DIEGO.

departments. This, with the patio and the two towers flanking the arch at the entrance to the waiting-room, form the principal architectural features of the exterior.

Perhaps the most interesting feature of the station, apart from the general architectural design, is the use of color.

The domes of the towers are of the zig-zag pattern in blue and yellow tile. This is an old Spanish design, which is also used in the San Diego Exposition domes. The cross, which is the symbol of the Santa Fe System, has been worked into this design.

On the interior walls of the large waiting-room and lunch-room a tiled wainscot of Moorish design has been used. This tile is made of five different colors and the appearance is remarkably good, giving the effect of a Turkish rug.

The construction of the depot was started on June 15, 1914. It was completed on December 31, 1914. It is 106 by 650 feet, with a main waiting-room 55 by 170 feet. It cost, with appurtenant facilities, over $300,000.

Southern Railway's New Out-Bound Freight Station at Richmond.

THE Southern Railway has recently placed in service a new out-bound freight station at Richmond, Va. The building is of steel, brick and concrete with fire-proof roof. It is 480 feet long by 40 feet wide, with a second floor 150 feet long. Forty feet of the first floor and all of the second floor are devoted to offices, the remainder of the first floor giving an out-bound warehouse 440 feet long with mastic floor and divided into three sections by automatic steel fire doors. House tracks provide space for placing 74 cars for loading. There are also ample team tracks with paved teamways and the receiving side of the building has a wide paved teamway and also an overhanging roof, so that teams can discharge freight into the warehouse regardless of weather conditions.

Located at Fourteenth and Cary Streets, the site of the old Southern Railway passenger station, this building is in the heart of the Richmond wholesale section and is reached by teams without having to cross any tracks. This facility is particularly important at Richmond on account of the large shipments of package freight by Richmond wholesalers to points throughout the territory served by Southern Railway.

The office section provides ample and well-lighted quarters for the forces of the Richmond agency, the superintendent, and other officials of the Richmond division.

The new outbound freight house is only a part of the improvements which Southern Railway has completed and has underway at Richmond. The old out-bound freight house has been converted into a tobacco warehouse and at Hull Street a commodious combination station has been built for the convenience of South Richmond shippers. Great improvements have been made in the shops and yards including a modern plant for handling coal, cinders and sand. These improvements will be more fully described in a future issue of the "Railway World."

Lehigh Valley's New Buffalo Station.

THE Lehigh Valley has recently started the construction of complete new passenger and local freight terminals at Buffalo to replace the present facilities which have become inadequate for the traffic. The passenger station, located between Main, Quay, Washington and Scott streets will be a four story structure of gray Indiana limestone with a granite base and terra cotta trimmings. The building described by the "Railway Age Gazette" will be set back 50 feet from the east line of Main Street to provide for a driveway and approach to the main entrance. It will have a frontage of 164 feet on Main Street and will extend back 102 feet on Scott Street. The areaway between the north side of the building and Quay Street will be paved, providing standing room for cabs and another driveway to the building. On the Washington Street side an open area 50 feet wide will be given over to a grass plot. Coming through the main entrance on Main Street or from Quay Street, one enters immediately into the main waiting room 82 feet by 102 feet in area, and the full height of the building. Three large arched windows will be provided on the Main Street side and smaller windows on the other sides in addition to large skylights in the roof. Marble will be used for the floors and wainscoting of this room. A lunch room and restaurant will be located on the Quay Street side of the waiting room, while on the Scott Street side there will be a smoking room, a women's room and retiring rooms for both men and women. Adequate space will be provided for the telephone, telegraph, newsstands, parcel rooms, etc. A hospital room will also be provided in the station. Offices will be provided on the Main Street side of the building on the second, third and fourth floors for the use of the Lehigh Valley and tenant companies. These offices will be provided with double elevator service and with independent stairways.

Terminal Improvements at Chicago.

A NEW roundhouse with thirty-three stalls and coachyards is being built for the B. & O., at Fourteenth and Robey Streets, and will be finished by the first of the year.

The Pennsylvania Company is constructing freight houses adjacent to the yards along the river, between Twelfth Street and Jackson Avenue. Both of these improvements were occasioned by the $65,000,000 Union Station project.

Work of acquiring sites for the Pennsylvania freight terminal has been going on for several months. The company has purchased long stretches of land from the Corn Products, the Busch Brewery, the Commonwealth. Edison and other holders.

New Coal Pier at Baltimore.

AN indication of the intention of the Baltimore & Ohio Railroad to provide at an early date a new coal pier at Curtis Bay, to handle its growing export business at this port, is the fact that the company is now having tentative plans prepared for the proposed improvement by its engineering department which are expected to be completed within the next few weeks.

It was stated to-day that the new pier would probably be 110 feet wide by about 700 feet long and that it would cost about $1,000,000. The capacity of the pier will not be known until the plans are ready to be put up to the officials of the road for their "O. K."

The Baltimore & Ohio's present pier at Curtis Bay has a capacity of 2,000 tons of coal an hour.

Electrical

Single-Phase Railways in Europe.

RAILWAY experts, who have made a study of railway electrification are generally of opinion that the single-phase system is unexceptional for long-distance main line working, but unsuitable for interurban and suburban sections of line. Some engineers state that where the two conditions exist on one railway system, the single-phase system should be installed for the main line, and that direct current should be used for the shorter runs. In England there are only two examples of single-phase railways working, but on Continental Europe this method is more general.

One of the common objections to single-phase railways is the high cost per mile of the overhead equipment and the belief that it is more expensive to maintain than a third rail. A prominent electrical engineer has stated that a good and properly insulated overhead equipment for single-phase working costs nearly five times as much per mile, as a third rail, and that the maintenance costs nearly six times as much. To which other experts reply that it is nullified by the fact that the direct-current system involves the use of rotary converter substations. The definite figures have been published about the alleged great cost of overhead equipment. $6,000 per mile of track sufficed to construct the (German) Blankenese-Ohlsdorf City and Suburban Railway in 1908, and $3,900 for more recent lines of the Prussian State Railways, on which 100-metre spans have been employed, as against $4,800 to $5,760 for a mile of third-rail equipment, as used on main lines. As regards the cost of working the two different systems, it is difficult to make a satisfactory and unanswerable comparison owing to the different conditions, such as the gradients, weights of the trains, nature of service, distance between stops and so on. European experts rightly or wrongly allege that it is not desirable to equip cars with combined single-phase and direct-current machinery, to enable them to work on either kind of line. Differing in this respect from American engineers. It is reasonable to agree that even if single-phase is accepted as somewhat less efficient than the direct current for working purely suburban service, it should nevertheless be adopted on the suburban sections of main lines, in view of the possibility of subsequent extension over longer distances.

It is noteworthy how soon the controversy between direct current and polyphase current has been forgotten in the face of these newer questions. Yet before the single-phase system, once the most hopeful of any, was developed there was a tremendous amount of discussion with respect to the relative merits of direct current and three-phase. The three-phase system is fairly good for certain conditions, but it does not appear to be applicable to many cases of railway electrification. One of the chief objections to it is that it calls for two overhead conductors over each track and two independent current collectors on the locomotive coach. At intricate portions of a line the employment of two overhead wires may and often does present great difficulty. Further the re is a considerable difference of potential between these conductors, which makes it not at all easy to construct them to be suitable for such higher pressures as are now employed in single-phase working. On the other hand, the induction motor, which of course is the type used on three-phase railways, is a very simple and sturdy machine; it has also the property of being able to work well on the regenerative principle, returning current to the line without entailing complications. It is true that single-phase machines can now be made to regenerate on down gradients, but at the expense of some complication in the electrical equipment.

A Third-Rail 2400-Volt Interurban Railway.

IN its current issue, the "Electric Railway Journal" describes a new electric line just completed for the Commonwealth Power Railway and Light Company which involves for the first time a third-rail supply of current at 2400 volts. The line connects Grand Rapids. Kalamazoo and Battle Creek in Michigan and has a total length of 95 miles, 45 of this, purchased from the Michigan Central, having formerly been steam road. Overhead trolley wires are used at some points on the line, with various types of catenary suspension, although the third-rail is predominant.

The line, especially the 50-mile section between Kalamazoo and Grand Rapids, which is new, is an excellent example of substantial and modern construction. This section is built for speeds up to 90 miles per hour, ordinary service requiring an hour and three-quarters for the trip, and express service, an hour and ten minutes. The equipment involves steel cars, the express service coaches having side doors and chair-car compartments.

Except for short sections in Grand Rapids and Kalamazoo, the maximum curvature of track is three degrees and the maximum grade, one per cent. All right-of-way is fenced with woven wire on cedar posts. Waterways and over- and under-crossings are steel or concrete; two large bridges were needed in Grand Rapids. The track is laid with 80-pound rail.

Roadway standards provide for an 18-foot roadbed on fills with a 1½ to 1 slope and a 24-foot roadbed in cuts with the same slope. No very heavy grading was necessary; the heaviest cut was 20 feet deep and 2,000 feet long, the heaviest fill was 30 feet deep and contained 60,000 cubic yards.

Special interest attaches to the third-rail. This is of 80-pound section on the main line and 52-pound on the sidings, of low carbon steel, guaranteed to give an electrical conductivity one-eighth that of copper. The rail is supported on a two-petticoat insulator on every sixth of the track ties, which are made longer for the purpose. The center of the third rail is 32 inches from the nearest gage line of the track and 8½ inches above the surface of the track rail. On continuous stretches less than a mile in length it is laid with expansion joints one and one-half times as wide as those in the track. Where the stretch is over a mile in length twice the standard track expansion is provided.

The rail rests on a malleable casting doweled to each insulator, the casting being so shaped as to permit free longitudinal movement of the rail. The insulators are tested to 5,000 volts. The rail is guarded on both sides so as to afford protection to men working on the tracks; on the track side the guard is a fir board one inch thick and 8 inches high, the top level with the top of the third rail; on the outside the guard is the same but is 10 inches high, coming two inches above the rail top; this arrangement prevents any tool or piece of metal which may drop across the rail from coming into contact with it. The guard boards are in 16-foot lengths and are supported by being attached by clips over the base.

Plans for Electrifying Chicago Terminal.

ELECTRIFICATION of the Illinois Central in Chicago is being planned in connection with the great terminal for which that company is rushing plans and specifications. The design for the station provides for three track levels. The cost of this improvement will be $15,000,000. The layout for the levels disclosed the electrification scheme which is necessitated by the fact that it is impossible to build a viaduct to the new lake front at one point and steam operation for triplicate levels is not deemed practicable.

Gas Delays Pennsylvania Railroad Electrifications.

ENGINEERS in the employ of the Pennsylvania Railroad who are electrifying the twenty miles of main track between Broad Street Station and Paoli, have encountered obstacles which were not contemplated when the improvement was first projected. The Pennsylvania is attempting to accomplish something which has never before been attempted, namely, the operation of electric trains by overhead wires and over tracks upon which are also operated steam locomotives. Heretofore all electrification of steam railroads on which steam locomotives have continued to run has been by means of the third rail.

After the work upon the Pennsylvania Main Line was completed it was found that the rods which connect the three wires and which were made of brass were affected by the sulphur in the smoke from the steam locomotives. Soft or bituminous coal is burned in the locomotives and it was found that the gases from this smoke so weakened the brass supports as to make them useless.

The lower of the three wires is called the contact wire, and against this the pantagraph upon the top of the cars presses in order to obtain the current for operation. This pressure is so great that a single wire cannot withstand the force, so two additional wires are strung and all are strengthened at intervals of about six feet by two connecting rods between the lower and middle wires and between the middle and upper wires. With these rods weakened by the smoke, the additional wires could not brace the contact wires as the engineers had planned.

After all of the brass rods were removed new rods were inserted. The substitute rods are made of a composition of copper and a small portion of zinc. But after being fully tested and experimented with it is now found that the smoke has the same effect upon the copper and zinc supports that it has upon brass. Scientific men are greatly interested in the problem of discovering a good conductor of electricity that will not become weakened by the gases from the locomotives.

A third attempt to overcome the difficulty is now being made and rods of steel will be used as supports. Attention is being given to a treatment of fuel or of feeding into the fire boxes of the locomotives something which will have the chemical effect of destroying the objectionable gases, so that they will not corrode the supports. As the problem is entirely new, it is attracting wide attention among electrical engineers.

Interstate Commerce Commission

Only Insignificant Rate Advances Permitted Western Roads.

THE Commission made public its decision August 11th, in the Western advance rate case and permitted the carriers increases which will aggregate only about one seventh of the amount asked for. This case, generally known as the Western Rate Advance Case, originated about 1910, when both the Eastern and Western railroads petitioned the Commission for a 10 per cent advance in rates. This the Commission denied at the time. In 1914 a general advance was again attempted by the roads in the Eastern territory, which resulted in their obtaining a five per cent advance. Following on the heels of this the Western roads brought their petition.

The Western roads did not propose a blanket increase, but merely asked permission to advance specific rates. It was estimated that these advances would return the roads about $7,604,247 per annum in additional revenue. According to the decision of the Commission, the roads will obtain but $1,600,000 additional revenue. This is the estimate made by Commissioner Daniels, who dissented from the opinion of the majority, holding that the roads were entitled to much more additional revenue.

In this proceeding the roads proposed increases in the carload rates on grain and grain products, live stock, fresh meat, packing house products, hides, fertilizer materials, hay, straw, broom corn, bituminous coal, coke, fruit, vegetables and brewers' rice, and in the any-quantity rates on cotton piece goods. Increases were also proposed in certain import and export rates through Gulf ports, and it was proposed to increase certain carload minima.

In addition the roads have proposed other increases. Some of these affect interstate passenger fares, while others have to do with changes imposed for various special transportation service. Furthermore, there are miscellaneous commodity rates which the roads have proposed to advance. These increases in rates, however, will be dealt with later by the Commission in a supplemental decision.

The general region affected by the decision embraces Illinois, Wisconsin, Minnesota, North Dakota, South Dakota, Colorado, Nebraska, Iowa, Kansas, Missouri, Arkansas, Louisiana, Texas, Oklahoma and New Mexico. Indiana, Kentucky and Alabama are also affected by the coal traffic. In the main the decision of the Commission was as follows:

1. Proposed increased carload rates on grain and grain products considered as one commodity not justified.

2. Proposed increase from 30,000 pounds to 40,000 pounds in the minimum carload weight of grain products justified.

3. Proposed increased carload rates on live stock not justified.

4. Proposed increased carload rates on packing house products and fresh meats, except as indicated between points on the Missouri River, not justified.

5. Proposed increased carload rates on fertilizer and fertilizer materials not justified.

6. Proposed increased rates on bituminous coal, except as to South Dakota points, justified. The rates on coke here proposed, which are the same as on coal, justified.

7. Proposed increased carload rates on brewers' rice and less than carload rates on domestic rice justified.

8. Proposed increased carload rates on broom corn not justified.

9. Proposed increased import rates and proposed increases in carload minima from Gulf ports justified.

10. Proposed increased carload rates on fruits and vegetables justified.

11. Proposed increased carload rates on hay and straw, where not in excess of class C, justified.

12. Proposed increased any-quantity rates on cotton piece goods, and proposed increased carload rates from points in Texas, not justified.

Commissioner Daniels in his dissent held the roads were entitled to increases "far in excess" of those granted by the decision. He was convinced that the majority of the Commission in refusing the principal increases took the position that the financial straits of the railroads were traceable to financial maladministration. The Commissioner held there was no question as to the facts in the financial affairs of the Rock Island, Frisco system and the Alton, which he referred to as having been "wrecked and plundered," but he held the rate increases were justified on their own merit.

"It is suggested," said Commissioner Daniels, "that the appropriate remedy is the prosecution and punishment of individual offenders not the continued withholding of adequate rates to the carriers as a whole." He added that the railroads had "abundantly demonstrated" that their operating income was smaller than is demanded in the public interest.

Commissioner Harlan also dissented. He declared that nevertheless the roads in the Western territory have proved their need of additional revenue. Both Commissioners Harlan and Daniels held that in addition to the increases allowed, the Commission should have granted the increases in the rates on live stock, fresh meats, packing house products and cotton piece goods.

Commission Adjourns.

On August 18th, the Commission adjourned until October 1st, although further decisions which are now in the course of final preparation will be made public before that date. The first conference of the fall session will probably concern the second supplemental case concerning increases in Western freight rates, and will be held by Commissioner Clark. It is understood that the Chicago, Rock Island case, the record of testimony taken, will not be submitted to the Department of Justice until after a transcript of the record has been sent to Congress. The Commission may send the record to the House as early as October 15, as it is not necessary to await until Congress is actually in session. No recommendations as to what steps should be taken by the Department of Justice will be made.

Lower Anthracite Rates Ordered.

In a decision made public on August 12th, the Commission ordered sweeping reductions in the anthracite freight rates of railroads handling 80 per cent of the country's anthracite production which held the carriers guilty of giving illegal preferential treatment to allied coal companies. In addition to prescribing generally lower rates regarded as reasonable, the Commission required the roads to establish through routes and publish joint through rates to be paid by all shippers.

Commissioner Harlan, the only member dissenting from the majority, contended that while modification of many of the present coal rates was justified, the action was inconsistent in view of the recent authorization of a horizontal increase of five per cent in rates for practically all other traffic.

The decision follows a long and comprehensive investigation of the rates and practices governing the transportation of coal from the Pennsylvania anthracite fields ordered June 10, 1912. As summed up by the Commission the decision held:

That the rates on anthracite coal prepared (general domestic sizes) and pea and smaller sizes, in carloads, applicable from producing districts in the Wyoming, Lehigh and Schuylkill regions in the State of Pennsylvania to tidewater ports and certain Eastern interior points are unreasonable, and the rates on anthracite coal, prepared and pea sizes, from said districts to other interior points are unreasonable and reasonable rates must be fixed for the future

That the respondents by means of trackage arrangements and the free transportation to junction points in the mining regions of coal exchanged by their allied coal companies have extended the advantages of interline transportation to their coal companies to the prejudice of other coal shippers to whom interline transportation at joint rates has been denied. Respondents required to establish through routes and publish joint through rates applicable thereto.

That anthracite coal is a low grade commodity which is transported in vast quantities in trains of maximum tonnage. The tonnage loaded in each car is much greater than the loading of most other classes of traffic. Most of the anthracite tonnage is shipped from collieries whose daily production, measured in carloads, is very large. These conditions tend toward lower operating costs.

That concessions and offsets granted by respondents to their allied coal companies in the form of interest charges, royalty earnings, the use of valuable property at inadequate rentals, the free use of the carriers' funds and credit, or by other means are as pernicious as direct cash rebates. Such concessions and offsets are unlawful.

That lateral allowances paid to a coal shipper in accordance with an agreement, alleged to be additional compensation for the use of a facility furnished by the shipper, are unlawful rebates.

Lines to which the decision directly applies are the Central Railroad of New Jersey; Philadelphia and Reading; Delaware, Lackawanna and Western; Lehigh Valley; Erie; Wilkes-Barre and Eastern; New York, Susquehanna and Western, New York, Ontario and Western; the Pennsylvania; the Northern Central and the Delaware and Hudson Company.

Lighterage Case Decision.

An important decision affecting the proposed changes in lighterage and storage charges and practices of railroads in the Port of New York, has been entered on by the Commission. The railroads sought to obtain increased rates for lighterage service, storage and other facilities provided for the convenience of shippers doing business at the New York terminals. Some of the advantages sought by the railroads were allowed, but the majority were rejected by the Commission.

In the course of the decision, the Commission took occasion to suggest that the railroads using the New York terminals should make a thorough revision of their tariffs. The Commission declared that the tariffs under discussion were ambiguous as to intent, that they bore evidence of carelessness in their preparation, and insisted that they must be withdrawn and rewritten.

In a general way the case decided was based on application by the railroads entering New York from the West for authority to increase rates, or to reduce service performed under present rates in connection with the delivery and receipt of freight at the New York terminals. For example, the railroads proposed to reduce the period of free storage on the Jersey shore from ten to five days as to domestic inbound freight for delivery at New York. Authority to make this change was granted. The Commission also allowed the railroads to make an increase charge of one cent a hundred pounds for each ten days or fraction thereof for storage on the Jersey shore of freight for New York delivery after reduced storage period. The Commission refused to permit the railroads to reduce the period of free storage on the Jersey shore from ten to five days for domestic inbound freight destined for coastwise transshipment

It also withheld authority for a minimum charge of $3 for each lot of westbound less-than-carload freight lightered or floated with carload lots or more of lighterage free freight. It also rejected the proposed increased charges for towing freight to certain points outside of free lighterage limits. Other concessions sought by the railroads that were either rejected or allowed by the Commission are as follows:

Proposed increased charges for handling and storing heavy iron and steel articles, cooperage stock and sawed stone; justified.

Proposed increased charges for staking, wiring, or cleating shipments of lumber, telegraph poles; justified.

Proposed reduction of period of free storage at railroad pier stations of domestic inbound freight from three to two days; not justified.

Proposed reduction of free storage of export less-than-carload freight at railroad pier stations from ten to five days; not justified.

Proposed charge for loading to or unloading from lighters at other than station piers or vessels of the carriers; not justified.

Proposed discontinuance of allowance to shippers or consignees for loading and unloading cars on floats; not justified.

Proposed increased charges for lightering heavy articles; not justified.

Proposed increase of minimum weight from 1,000 to 2,000 pounds for free lighterage of dressed poultry, butter, cheese and eggs; not justified.

Ogden Gateway Decision.

In the general interest attached to the decision of the Commission upon the rate advance asked for by the Western roads, minor atention was paid to the ruling announced at the same time on the Ogden Gateway case In railroad circles, however, the latter decision was the subject of much discussion and comment. It settled one of the most important passenger rate controversies which the Commission has ever been called on to review and the Union Pacific officials express high gratification at the complete victory won for their contentions.

In 1914, the Union Pacific system announced its intention to discontinue the interchange with the Denver and Rio Grande Railway, at Ogden, of passenger business to or from points on the Oregon Short Line—a part of the Union Pacific system The Denver and Rio Grande contended that as these rates had been in effect about 18 years, they should not be cancelled. The Union Pacific stood upon what it regarded as its legal right to retire from an agreement which short-hauled its own lines, and contended that it was entitled to the long haul on passenger traffic to and from territory served by the Oregon Short Line The principal reason assigned was the large expenditures made by the Union Pacific in the construction of branch lines, particularly the Yellowstone Park and in Oregon Short Line territory, the testimony indicating that in recent years $109,000,000 was expended in the construction of branches for the purpose of enabling the Union Pacific to serve Idaho and adjacent territory, while the Denver and Rio Grande, on the other hand, had not invested a dollar in Oregon Short Line territory.

Commissioner Harlan, in announcing the majority opinion of the Commission, said:

"In addition to the shorter mileage, the service of the Union Pacific in point of time is much superior. The fastest train over its rails from Omaha reaches Ogden in 18 hours and 55 minutes, less time than the best train between the same points over any route in connection with the Denver and Rio Grande.

"The situation before us is a very practical one. The Denver and Rio Grande route, as herein before pointed out, is longer by nearly 400 miles and is 19 hours longer in point of time. Under such circumstances, if no through route were now open, an order, based on the record before us, requiring the Union Pacific system to short-haul itself by establishing the present parity of fares over the Denver and Rio Grande, would be illogical and arbitrary in the highest degree. It would be no less so should we undertake to exercise our power under the same provision of law, by compelling the Union Pacific to continue a rate adjustment which we could not lawfully require it to establish as an original question."

Higher Cattle Rate Condemned.

THE Commission has rendered a decision denying the proposed increase in the rates on cattle and sheep in carloads from points in Colorado, South Dakota and other States to points on the Missouri and Mississippi rivers and to Chicago, Ill.

The Commission reviewed the facts submitted by the roads in this case to indicate that the existing rates were low. It was also pointed out that the risk on shipment of live stock is comparatively greater than most other commodities. The decision said, however:

"The incongruity between the proposed interstate rates and the intrastate scale is a circumstance which goes vitally to the propriety of the rates under suspension. To dispose of this issue it is necessary to have before us the facts and circumstances surrounding the establishment of these intrastate rates. The record, however, in this respect is insufficient."

Commissioners Harlan and Daniels dissented from the opinion of the majority because they held that the interstate rates should be judged upon their merit. Mr. Daniels said: "The record shows indubitably that the cost of the service of transporting live stock has in the last few years been largely augmented, and that the value of live stock having increased 40 per cent, the value of the service to the shipper is greater than heretofore."

Increase in Western Coal Rates Permitted.

IN a decision handed down on August 16th, the Commission has approved the increase of 25 cents per gross ton on anthracite coal, "prepared sizes," from Pennsylvania mines to Chicago, Ill.; to points taking Chicago rates; to connecting points between Eastern and Western lines near Chicago, such as Joliet and Kankakee, and to the other connecting points, Peoria, East St. Louis and St. Louis. The increase proposed was suspended by the Commission until July 17, but the decision was held up pending the issuance of the recent report of the Commission in the so-called anthracite case wherein numerous reductions in rates were ordered from the Pennsylvania mines to tidewater. The 25-cent increase here involved, therefore, has already gone into effect.

The all-rail movement of anthracite coal to Chicago is annually about 2,500,000 tons, and the movement by water in 1913 was 1,083,712 tons. The water traffic is not affected. It is, therefore, anticipated that the 25-cent increase allowed by the Commission will return to the roads about $625,000 additional revenue per annum. Anthracite coal is not sold f. o. b. at the mines, but at such a price per net ton in Chicago as preserves to the producer of coal the advantage of the 25 cents, so that the producer realizes more profit on the through shipments to Chicago than on the local shipments to Buffalo or on the through shipments to points between Buffalo and Chicago.

Report on the Rock Island.

THE Commission's report on the Rock Island, which was handed down on August 17th, describes the recent court action which resulted in the appointment of receivers as "not a bona fide proceeding to collect a debt, but one instituted to carry out the purpose and schemes of the syndicate controlling the railway."

The report details loses to railroads aggregating $25,000,000 since 1901, this total including $1,000,000 that was paid as "gratuities or contributions" to officers and directors. In addition the railway company paid to financial institutions in connection with the issuance of bonds, commissions aggregating more than $1,600,000 and suffered discounts of more than $17,700,000.

"The amount of gains," says the Commission, "accruing to W. B. Leeds, D. G. Reid, W. H. Moore and J. H. Moore through their control and manipulation of the railway company are probably not ascertainable. Reid, when interrogated with a view to ascertaining his profits from the various transactions, explained that he always burned his books at the end of each month. The quotations placed in the record from the stocks and bonds of the holding company stock and the railway company stock showed wide fluctuations. Whatever have been the gains realized by these persons, it is certain that the present holders of the stocks and bonds of the holding companies have that which is of little or no value."

The Commission condemns the directors of the Rock Island. Here are a few of the things it says:

"This record emphasizes the need of railway directors who actually direct.

"A director who submits blindly to the exploitation of his company is a party to its undoing and he could be held responsible to the same extent as if he had been a principal instead of an accessory before the fact.

"It should be just as grave an offense for an official of a railway to be faithless to his trust for financial gain as it is for an elected official of the Government to betray his trust for money reward."

The Commission contends that the case of the Rock Island again demonstrates the necessity for legislation imposing a limitation on the issuance of stocks and bonds by railroads.

Regarding the receivership, the Commission has, in part, the following to say:

"The creditor at whose instance the receivership application was filed appeared as complainant by request. R. P. Lamont, the president of the American Steel Foundries, the complainant, testified that he would not have thought of bringing such a proceeding against the railway company unless he had understood that it would be regarded as not unfriendly but as a friendly act to oblige the railway company. He only consented that his company should appear as complainant when he was assured that this course was in accordance with the wishes of the railway company and that his company was not to have any care or expense in the preparation of papers or payment of counsel fees. The suit was not a bona fide proceeding to collect a debt, but was instituted to carry out the purposes and schemes of the syndicate controlling the railway.

"The bill was filed April 20. The records of the New York stock market reveal that the railway stock was inactive until the day this bill was completed, March 29. Then the stock began to be largely dealt in and the price increased from $20 to $39 a share. When the bill was filed and receivers were appointed the stock dropped from $39 to $20 a share.

"The property of the railway company will be called upon for many years to make up the drain upon its resources resulting from transactions outside the proper sphere in which the stockholders had a right to suppose their moneys were invested. This record emphasizes the need of railway directors who actually direct.

"By this case the need of some limitations on issuance of stocks and bonds by common carriers, whether directly or through holding company devices or otherwise, is again demonstrated."

The Commission's report details the history of the Rock Island from 1901 when Daniel G. Reid, W. H. Moore, J. H. Moore and W. B. Leeds purchased about $20,000,000 of the stock. The report shows how the capitalization grew from about $50,000,000 to more than $300,000,000, including the stocks of the holding companies.

"By the organization of the two holding companies," says the Commission, "the syndicate, the members of which held but little more than one fourth of the railway stock secured control of and dominated the affairs of this transportation system."

Baggage Ruling.

A RULING issued by the Commission on August 10, holds that proposed rules on railroads, prohibiting the through-checking of baggage and sale of through parlor or sleeping car tickets on combination tickets were unreasonable. Travelers from New York, Philadelphia, Baltimore and other Trunk Line points were able to check their baggage through to destination in the South and Southeast and secure Pullman car accommodations on combination tickets good only to and from gateways to Southern and Southeastern points. The Pennsylvania and the Baltimore and Ohio proposed to abolish this practice.

"Such a provision," the Commission held, "is obviously unjust and unreasonable. It operates to subject the holders of all such tickets to an annoying and often prohibitory inconvenience and goes beyond the avowed purpose of the railroads to protect the joint through fares in which they participate."

Commissioner Harlan dissented from the general view expressed by the Commission.

Cummins Amendment Explained.

BECAUSE of the numerous inquiries concerning the meaning of section 10 of the act to regulate commerce, known as the Cummins amendment, the Commission has issued a circular making plain its application to the declaration of baggage.

There is no provision requiring a declaration as to the value of property shipped, but it is provided that if the goods are hidden from view by wrapping, boxing, or other means and the carrier is not notified as to their character, "the carrier may require the shipper to state in writing the value of the goods." In such cases rates and charges for transportation, dependent upon the value of the property shipped, as specifically stated in writing by the shipper, may be established and maintained.

The Commission held that "so far as declarations as to value are concerned, the prerequisites for the application of section 10 are, first, the election of the carrier to require a shipper to state in writing the value of the goods; second, the existence of graded rates, or charges dependent upon the value of the property shipped; and, third, that the shipper shall not knowingly and wilfully, by false statements as to value obtain or attempt to obtain transportation for such property at less than the regular rates."

Physical Valuation Hearing.

THE Commission has given notice that the oral arguments involving the physical valuation methods would not be heard before the last of September. The Commission has set September 30 and October 1 and 2 for these arguments, to be held at the offices of the Commission in Washington. It was stated that the arguments will be upon the fundamental principles involved in the work of making valuation of the property of common carriers.

Representatives of the railroads, as well as representatives of State Railroad Commissioners, will be permitted to take part in the arguments, which will be based chiefly upon those physical value regulations already issued by the Commission.

Rules for Sleeping Car Companies.

THE Commission has adopted regulations which will compel sleeping car companies to keep records of berth seat revenues for seven years and reports of meal and conductors' diagrams of seats and earnings for three years, respectively. After these periods, the records may be destroyed.

To Investigate Ocean Transportation.

THE Commission, at the request of President Wilson, is to make a thorough and extensive investigation of ocean transportation facilities and rates between the United States and foreign countries. The Treasury Department and the Department of Commerce will co-operate. The purpose of the investigation is to acquaint Congress with the actual situation regarding ocean transportation at the present time and its effect upon American foreign trade.

Track Shortage Rate Upheld.

A DECISION has been entered by the Commission approving the track storage charges maintained by the Chicago and North Western and other railroads at Milwaukee, from August 1, 1913, until January 2, 1914. The charges were contested by the Milwaukee Produce and Fruit Exchange.

Dismissing the contention of the complainants, the Commission said: "They admit that they used defendants' cars for storage purposes and thus detained them beyond the free time. They assert the right to do this in view of the fact that the market and other conditions in Milwaukee are such that it is impracticable to unload cars more promptly. A consignee of freight has no legal right to use a car as a warehouse or storage plant. Defendants were within their rights when they imposed team-track storage charges in Milwaukee It can make no difference that the carriers have temporarily withdrawn the charges for the purpose of refiling them in a different form. The principle is not affected by the fact that the tariffs prescribing the charges at Milwaukee may have been objectionable for other reasons. Complainant contends that the tariffs were discriminatory in that they did not include private and industry tracks. No unjust discrimination has, however, been shown. Storage charges should properly apply to the yard or tracks where the evil sought to be remedied exists, and not elsewhere. Track-shortage charges are but additional demurrage charges, made necessary by conditions which may exist at a particular yard or yards in a city."

The Express Rate Decision.

THE Commission has granted the petition of the express companies for a modification of the original rate order of July 24, 1913, and effective February 1, 1914. In granting this petition, the Commission accepted the plan of the express companies for effecting the modifications, the same to become operative September 1, 1915.

In their petition the companies declared that they had made every effort to effect all possible economies compatible with efficiency, and had effected a material reduction in the cost of handling traffic per unit. Furthermore, they declared that they had made every effort to develop and obtain new and additional business to offset the reduction in revenue resulting from rate reductions. Notwithstanding such economies and the increase in business, however, the companies found their gross revenues insufficient to enable them to continue their present standard of service.

Following the suggestion in the petition of the companies, the Commission entered an order which will modify existing conditions. The effect of the change will be to increase the allowance for collection and delivery to the extent of five cents for each shipment and reduce the rail terminal allowance at the rate of one-twentieth of one cent per pound.

As the weight increases the 5 percent increase allowed for packages of five pounds or less is gradually decreased, so that on shipments of more than 100 pounds there will be no reduction from present rates, and on some packages of 85 pounds and over, there will be no reduction. The scale allowed by the Commission above five pounds on first-class traffic is as follows:

On packages of from 6 to 29 pounds, a 4 percent increase; 30 to 49 pounds, 3 percent; 50 to 70 pounds, 2 percent; 71 to 90 pounds, 1 percent. The Commission makes this exception:

"Certain weights will, however, differ slightly from the figures given due to the disposition of fractions, and not all shipments of over 85 pounds will be increased."

The Commission says further:

"While the above is representative of the increases on first-class traffic, second-class shipments will be increased 75 percent of these amounts, as the second-class rates are 75 percent of the first-class rates. Substantially no commodity rates will be affected by the proposed increases. Under the plan proposed the distance the shipment is hauled has no bearing upon the proposed increases in rates, except in so far as they may be affected by the casting off of fractions of one-half cent or the addition of one cent when the fraction exceeds one half."

The Commission, in its order, says: "If they (the express companies) are operating at a loss under rates prescribed by us, and it clearly appears that they are, they are entitled to a reasonable relief promptly and without awaiting the result of another general investigation that would consume two or three years. We are of the opinion that the plan proposed will not result in rates that are unreasonable.

"By actual count of shipments on two typical days for each express company in 1915," the Commission points out, "the petitioners estimated that they handled during that year, in interstate movements and in the States where an interstate scale had been adopted, 119,544,043 first-class and 20,191,646 second-class shipments, each less than 100 pounds in weight, the first-class shipments being 61.66 percent, and the scond-class 10.41 percent of the total number of shipments.

"By a similar method they estimated the average weight per first-class shipments of less than 100 pounds to have been 21.36 pounds, and per second-class shipment of less than 100 pounds 52.17 pounds during the same period. Using these average weights for the first and scond-class shipments, the additional revenue per first-class shipment under the proposed plan will be 3.93 per cent, and on second-class 1.79 per cent.

"At the additional revenue of 3.93c per first-class shipment of less than 100 pounds, the 119,544,043 shipments handled in the year 1915 would have yielded an estimated additional revenue of $4,700,472; and at an increase of 1.79c per shipment, the 20,191,646 scond-class shipments of less than 100 pounds would have yielded an estimated additional revenue of $362,162, or a total estimated additional revenue from both classes of $5,062,624. The petitioners' gross transportation revenue for the year 1915 was $131,173,670. The estimated increase of $5,062,634 would be approximately 3.86 percent increase in gross revenue."

STATE COMMISSIONS.

Arizona.—The Railroad Commission has filed a complaint with the Interstate Commerce Commission against the Southern Pacific, the Atchison, Topeka & Santa Fe, El Paso & Southwestern, the Arizona Eastern, the Arizona & New Mexico and the Grand Canyon railroads of unreasonable passenger fares between Arizona and points in California.

California.—Application has been made to the Railroad Commission by the Southern Pacific, the Santa Fe, the San Pedro, the Western Pacific, and the Western Association of Short Line Railroads, for relief from a new law making it unlawful for railroads "to require or permit any engineer, fireman, conductor, brakeman or train man to receive, deliver or transmit at any receiving or forwarding instrument of any telephone or telegraph line, any order for the movement of any train except in such cases or classes of cases, as may be permitted by the railroad Commission. The carriers contend that operating conditions in the state do not require an immediate and absolute enforcement of the law.

Missouri.—At a conference at Jefferson City between the Missouri Public Service Commission, the Missouri railroads, the Merchants' Exchange of St. Louis and the Missouri Grain Dealers' Association compliance with the order of the Interstate Commerce Commission recently issued that discrimination created between state and interstate rates on grain and grain products within Missouri should be eliminated was provided for by the Missouri Commission prescribing certain rates, which the railroads accepted as satisfactory for state and interstate shipments. When approved by the Interstate Commerce Commission these rates will be the sole rates in effect within the state of Missouri. The rates are substantially the old schedule of interstate rates that were in effect before the statutory rates became effective, except that where the old rates were unduly high some modification has been made by reducing them. The rates are likewise made applicable to both St. Louis and East St. Louis without bridge toll and will absorb switching at points of origin and destination necessary to take care of the required terminal services, as well as permit milling in transit or rehandling of the grain at an intermediate point within Missouri, without additional charge.

New Jersey.—Upon the conclusion that it would not be justified in finding that the Pennsylvania Railroad Company failed to provide adequate service between Trenton and seashore points, under the provisions of a summer schedule, the Board of Public Utility Commissioners has decided that no order should be issued requiring a change in schedule.

New York.—An order of the Second District Public Service Commission to-day marked the end of the effort of the railroads to collect a charge for "spotting" cars, or placing them on and collecting them from industrial tracks and roads. This charge was proposed to be imposed on both inter and intra state traffic. The Public Service Commission suspended it in the case of intra-state traffic pending the decision of the Interstate Commerce Commission as regards interstate traffic.

The Interstate Commerce Commission has decided against the reasonableness of the charge in the larger field, and the Public Service Commission follows this decision. The carriers—all of the roads of importance in the state—have now filed tariffs discontinuing the proposed spotting charge and the Commission has discontinued its proceedings. The charge was to have been made at 5½ cents per ton with a minimum of $2.00 per car.

Oklahoma.—By order of the State Corporation Commission, the two-cent passenger rate and the same freight and express rates that are charged over the state are put in effect on the old Oil Belt Terminal Railroad, recently bought by the Santa Fe, and in operation from Jennings to Oilton. The Commission has set August 10th for a hearing on the order permitting the Santa Fe to show cause why the same rates should not be charged as elsewhere on the Santa Fe system in this state. Thus far five cents a mile passenger rate has been charged on this road, with a 50-cent express rate. These rates were inaugurated by the old Oil Belt Terminal Company, and have since been held in effect by the Santa Fe.

Ohio.—Hearings have been begun by the Utilities Commission on the petitions for a change in coal rates upon railroads within this state. Thirty-nine railroads are affected. Both operators and miners allege that the closing of the mines is due to discriminatory rates that prevent the Ohio product being marketed in competition with West Virginia coal.

Pennsylvania.—The Public Service Commission has adopted a resolution in favor of total elimination of, or protection of all grade crossings in the State of Pennsylvania. A careful examination and classification of all grade crossings in Pennsylvania, both with respect to the danger and the nature of the protection to be afforded, is contemplated. It is stated that there are upwards of 1,000 unprotected grade crossings in Pennsylvania and their elimination will cost the railroads and municipalities concerned approximately $300,000,000.

LEGISLATION.

Southern Roads Reject Compensation Law.—The Louisville and Nashville Railroad Company has served notice to its employes in Indiana that it rejects the new state workmen's compensation law, which will go into effect on September 15th. The Southern Railway Company has taken the same action. An employer is considered to have accepted the provisions of the act unless he gives notice otherwise. Adolph C. Decker, former state representative and one of the attorneys for the Louisville and Nashville Railroad Company, explained that the railroad has few, if any, employes that would not be considered to be engaged in interstate commerce, and that the law does not apply to those thus engaged. Decker says that while the railroad company feels sure that it does not come under the law, it has given the notice to make sure.

New Haven Accepts Validation Act.—The New York, New Haven and Hartford Railroad has filed with the Massachusetts Secretary of State a certificate of acceptance, by the Board of Directors, of the "New Haven Validation Act." so-called. The last section of the act provides that it shall become effective upon acceptance by the New Haven Board of Directors within sixty days of its passage.

The act was signed by Governor Walsh on June 4th and the time for its acceptance would have expired to-morrow. The certificate is signed by A. E. Clark, secretary of the New Haven Railroad.

The act validates the New Haven stock outstanding on June 30, 1914.

LEGAL.

New Haven Directors and the Sherman Law.—In compliance with the order of Judge W. H. Hunt, the United States Government has filed in the Federal District Court of New York the bill of particulars asked for by the officers and directors and counsel of the company to enable them to answer Sherman law indictment charging them with engaging in a conspiracy to monopolize interstate trade and commerce between New England and other states. The bill contains 188 paragraphs and alleges that in each of the matters specified it was with the purpose and intent of aiding, abetting, and carrying on the conspiracy that the defendants adopted such plans as they did and became responsible for them.

California Rates and Litigation.—The United States District Court at San Francisco has received an order signed by Federal Judge Sawtelle, of Arizona, directing the United States Government, the Interstate Commerce Commission and six railroads to show cause why an interlocutory injunction should not be entered against the new tariffs removing Sacramento, San Jose, Stockton and Santa Clara from the benefit of terminal rates.

The Interstate Commerce Commission, by orders issued January 29th and April 30th, 1915, decreed that the cities mentioned were not entitled to terminal rates. Traffic organizations of the cities thereupon started injunction proceedings.

The defendant railroads are the Atchison, Topeka & Santa Fe Railroad Company, the Chicago, Rock Island & Pacific Railway Company, the Denver & Rio Grande Railroad Company, the Southern Pacific Company, the Union Pacific Railroad Company and the Western Pacific Railroad Company.

Delaware, Lackawanna and Western Enjoined in Coal Case.—The Circuit Court at Trenton, New Jersey, has entered a decree in the United States District Court for the district of New Jersey enjoining the officers and directors of the Delaware, Lackawanna & Western Railroad Company and the Delaware, Lackawanna & Western Coal Company from continuing the business of coal mining and purchase and shipping heretofore in existence between the two concerns. The decree is in accordance with the recent decision of the United States Supreme Court.

Suit to Invalidate Nebraska Two-Cent Fare Law.—The Missouri Pacific Railway has filed suit in the Federal Court at Lincoln to have the Nebraska two-cent fare statute declared void, asking that the members of the State Railway Commission be enjoined from exacting a penalty for a violation of the statute. The Missouri Pacific bases its suit on an alleged discrimination between freight and passenger rates in the state. If the injunction is granted, the ruling will apply to all roads in the state.

Last winter the road went before the Legislature and asked for an increase in rates. When this failed, the request was taken to the State Railway Commission and afterward to the Nebraska Supreme Court, but in each instance the railroad lost.

Commission's Order for Sunday Train Held Unlawful.—The Supreme Court of Minnesota has overruled the action of the State Railroad Commission ordering the restoration of a Sunday train that was discontinued by the Great Northern, because unlawful and unreasonable. This is said to be the first time that a Railroad Commission has undertaken to compel a railroad to run a Sunday train, except in Missouri where a law permitting it was sustained by an Appellate Court, three of the seven judges dissenting on the question of the constitutionality of the law.

LABOR.

Railway Workers to Form Political Body.—A thousand representatives of the five big Brotherhoods on the Pennsylvania Lines East of Pittsburgh and Erie, held a meeting in Altoona on August 8th, at which the steps emphasized the importance of railroad men taking an active part in politics. The constitution and bylaws of each organization forbid partisan politics, but by co-operating under a different name they can centre on candidates for public office, especially the Legislature, without violating their obligations. No action was taken, but sentiment is crystallizing in favor of the "get-together" plan.

Wage Arbitration Board Asked to Reconvene.—The Board of Arbitration, which last spring decided the wage demands of the firemen and engineers of the Western railroads, has been asked to reconvene to decide disputed points in its award, it was learned. Some time ago the heads of the Brotherhoods of Enginemen issued a pamphlet giving their interpretation of the application of the award to the wage schedules of individual railroads. One hundred and forty-six points were interpreted from the view-point of the Brotherhoods.

The interpretations were reviewed by the committee of general managers, who are said to have disagreed with the Brotherhoods on nearly every point. This made it necessary to ask the arbitrators to meet again, and the meeting will be held, probably in Chicago, at the earliest convenience of the arbitrators. Judge Peter C. Pritchard, of North Carolina, is chairman. Charles Nagel, of St. Louis, is one of the members.

Burlington to Recruit Employes Along Its Lines.—Hale Holden, president of the Burlington, has suggested to the heads of the different departments of the company that hereafter every effort be made to recruit employes from those residing along the lines of the system. Not only is it desired to secure employes from the districts through which the company operates, but efforts may be made to enlist the public school teaching interests of the country in encouraging students to take up transportation work. It is the idea of the management that employes secured from the farms and towns along the Burlington are better acquainted with the road, treat it as a "home" line, and thus naturally become loyal workers. The management of the company also feels that it owes something in this way to the people of the country through which it does business and derives patronage, and that there is more likelihood of permanence of employment when homes are situated along the lines.

EQUIPMENT.

Rail Purchase by the Gulf, Florida and Alabama Railway.—The Gulf, Florida & Alabama Railway Company has purchased 6,000 tons of eighty-pound rails to complete its extension of the line to a connection with the Southern Railway at Kimbrough. It is understood that the Pennsylvania Steel Company booked the order. The railway company has awarded a contract to the American Bridge Company for a draw-bridge over the Alabama River, calling for 100 tons of steel.

Philadelphia & Reading Rail Order.— The Philadelphia & Reading Railway Company has placed an order for steel rails of approximately 5,000 tons.

Interlocking Plants for Southern Railway.—The Southern Railway in addition to the automatic signals which it will install in connection with the new double track lines, is about to erect large interlocking plants at Charlottsville and Danville, Va. These plants will be provided with electric locks and annunciators to notify operators of approaching trains. The Charlottsville plant will have a total of 48 levers and the Danville plant a total of 40.

Baltimore and Ohio Places Rail Order.—The Baltimore and Ohio Railroad has announced that it has placed contracts with several steel mills for 17,000 tons of steel rails and with car manufacturers for 1,000 steel hopper car bodies for immediate delivery. The material covered by the contracts will cost about $1,000,000.

Practically all of the rails will be of the heavy type, weighing 100 pounds to the yard, and will be used for replacement on the company's Chicago line.

Pennsylvania Railroad Asks Bids for New Vessels.—The Pennsylvania Railroad Company has asked bids on the construction of sixteen new vessels for use in New York Harbor. These will consist of: one steam lighter, three derrick barges, twelve covered hatch barges.

More Engines for the Pennsylvania Railroad.—The company has ordered the construction of ninety-four engines at its shops at Altoona. This brings the total for new engines for the road under the 1915 program up to 194, all for replacement.

CONSTRUCTION.

Eliminating Grade Crossings in Virginia and North Carolina.—In connection with the double track work which it has had under way in Virginia and North Carolina during the past fiscal year, on 102.4 miles of its Atlanta-Washington line, the Southern Railway has eliminated 54 out of 73 grade crossings. By the building of underpasses, 20 were eliminated, by overhead bridges 19, and by changing the direction of public highways, 15. The 19 which remain are so located as to make their elimination physically impossible, or they involve prohibitive damages to abutting property.

GENERAL NEWS NOTES.

Record Grain Crops to be Harvested.—Estimates of the principal crops which have been announced by the Department of Agriculture, based on conditions of August 1st, show that in round figures a harvest of 3,000,000,000 bushels of corn, 1,500,000,000 bushels of oats and 1,000,000,000 bushels of wheat are in prospect. Record crops of white and sweet potatoes, tobacco, rice and hay are also predicted.

Increase in United States Steel Orders.—The United States Steel Corporation in its monthly statement reports unfilled orders on its books as of July 31st last, of 4,928,540 tons. This compares with 4,678,196 tons on June 30th last, an increase of 250,344 tons, and with 4,158,589 tons on July 31, 1914.

Mills of the corporation are operating at 95 per cent capacity, and indications suggest that the prosperity now being enjoyed by the iron and steel trade will continue in force for some time.

During the past month new business was booked at the rate of 9,000 tons a day in excess of shipments. The shipments must have averaged close to 45,000 tons a day last month, so that incoming business can be estimated at 54,000 tons a day.

In the Erie Museum.—The only railway equipment that has ever been used in North Pole exploration is a caboose owned by the Erie Railroad which now stands in a permanent position at the Susquehanna, Pa., station. This caboose was loaned Lieut. Peary by the Company in 1899, and was used as a deckhouse on the ship "Windward" and as sleeping quarters at Etah. The highest latitude reached by the caboose was 70 degrees north, and it is the only railroad car ever sent to the Arctic regions.

Another treasured relic owned by the Erie, also occupying a permanent berth at Susquehanna, is an old wide-gauge passenger coach of the 70's, and earlier, which, while considered a palatial affair forty-odd years ago, is in striking contrast to the present up-to-date equipment.

A Patriotic Railroad.—It is reported in the press that the Canadian Pacific Railway recently placed the following note in the pay envelope of some of its unmarried men: "Your King and Country needs you; we don't."

RESIGNATIONS.

Legal.

Robert Walker, general counsel to the receivers, Chicago, Rock Island and Pacific Ry.

Engineering and Mechanical.

H. G. Batten, supervisor of bridges and buildings, Grand Trunk Ry.
George A. Butler, acting assistant engineer, Grand Trunk Ry.
J. E. Love, structural engineer, Chicago, Milwaukee and St. Paul Ry.
R. H. Pembroke, chief engineer, Coal and Coke Railway.

Operation.

O. C. Hill, general yardmaster, Chicago, Burlington and Quincy Ry.
John W. Meehan, superintendent, Kazoo and Mississippi Valley R. R.
J. E. Taussig, general superintendent, Texas and Pacific Ry.

Traffic.

Col. I. A. Benton, general passenger and freight agent, Denver and Rio Grande R. R.
C. J. Chisam, assistant general freight agent, Chicago Great Western R. R.
H. M. Cottrell, agricultural commissioner, Chicago, Rock Island and Pacific Railway.
James Horsborough, Jr., general passenger agent, Southern Pacific Company.
George H. Lee, general passenger agent, Chicago, Rock Island and Pacific Ry.
G. W. Newborn, traveling freight solicitor, Pennsylvania Lines West of Pittsburgh.
Edward J. Naylor, assistant freight and passenger agent, Chicago and Alton Railroad.
E. A. Treadway, division freight agent, New York Central Lines.

Purchasing.

H. M. Powell, general storekeeper, St. Louis and San Francisco R. R.

ELECTIONS AND APPOINTMENTS.

Executive.

J. E. Taussig, assistant to president, Wabash Railroad. Headquarters, St. Louis, Mo.

Accounting.

Charles L. Lowe, acting auditor of expenditures, Chicago & North Western Railway.

Engineering and Mechanical.

M. C. Blanchard, engineer, Eastern District, Atchison, Topeka and Santa Fe Railroad. Headquarters, Topeka, Kansas.
W. C. Baisinger, division engineer, Atchison, Topeka and Santa Fe Ry. Headquarters, Newton, Kansas.
G. J. Bell, engineer Western District, Eastern lines, Atchison, Topeka and Santa Fe Railway. Headquarters, Newton, Kansas.
F. C. Carlson, master mechanic, International and Great Northern Ry. Headquarters, San Antonio, Texas.
F. D. Cosner, engineer, maintenance of way, Coal and Coke Railway. Headquarters, Gassaway, W. Va.
Charles Edelman, signal supervisor, Missouri Pacific Railway. Headquarters, Osawatomie, Kansas.
G. H. Frith, acting assistant engineer, Belleville Division, Grand Trunk Railway. Headquarters, Belleville, Ont.
A. M. Harvey, signal supervisor, Canadian Government Railways. Headquarters, Moncton, N. B.
H. A. Hatch, division engineer, Atchison, Topeka and Santa Fe Railway. Headquarters, Chanute, Kansas.
W. J. Head, road foreman of engines and trainmaster, Cleveland Terminal & Valley Division, Baltimore and Ohio Railroad. Headquarters, Cleveland, Ohio.
Joseph P. Heinzer, road foreman of engines, Northern Pacific Railway. Headquarters, Pasco, Wash.
A. P. Jander, general foreman, Atchison, Topeka and Santa Fe Railway. Headquarters, Trinidad, Colo.
C. C. Jones, supervisor of bridges and buildings, Detroit Division, Grand Trunk Railway. Headquarters, Detroit, Mich.
J. A. MacRae, mechanical engineer, Louisville and Nashville Railroad. Headquarters, South Louisville, Ky.
H. M. Powell, supervisor of material and supplies, Texas and Pacific Railroad. Headquarters, Marshall, Texas.
H. E. Tyrell, engineer maintenance of way, Western District, Southern Railway. Headquarters, St. Louis, Mo.
Joseph Weidel, valuation engineer, Atchison, Topeka and Santa Fe Railroad. Headquarters, Chicago, Ill.

Operation.

P. C. Allen, superintendent, Baltimore and Ohio Railroad. Headquarters, Baltimore, Md.

Joseph M. Boyd, trainmaster, Yellowstone Division, Northern Pacific Railway. Headquarters, Dickinson, N. D.

L. L. Brown, acting assistant superintendent, Southern Pacific Railway. Headquarters, Sparks, Nev.

M. H. Cahill, superintendent, Cumberland Division, Baltimore & Ohio Railroad. Headquarters, Cumberland, Md.

W. R. Cahill, superintendent, Texas Division, Missouri, Kansas and Texas Railway. Headquarters, Wichita Falls, Texas.

S. T. Cantrell, superintendent, Baltimore and Ohio Railroad. Headquarters, Philadelphia, Pa.

C. T. Connett, assistant trainmaster, Creston Division, Chicago, Burlington and Quincy Railroad. Headquarters, Creston, Iowa.

J. H. Elliott, general superintendent, Texas and Pacific Railway. Headquarters, Dallas, Texas.

J. P. Falk, superintendent of terminals, Chicago, Burlington and Quincy Railroad. Headquarters, Kansas City, Mo.

Louis C. Fritch, general manager, Canadian Northern Railway. Headquarters, Toronto, Ont.

C. Gavin, trainmaster, Northern Alabama Railway. Headquarters, Sheffield, Ala.

William S. Hanley, division superintendent, New Orleans and Great Northern R. R. Headquarters, Bogalusa, La.

Osmer C. Hill, general superintendent, Kansas City Terminal Railway. Headquarters, Kansas City, Mo.

C. A. Hodgman, superintendent of car service, Minneapolis & St. Louis Railway. Headquarters, Minneapolis, Minn.

E. C. Huffman, superintendent, Breckenridge Division, Great Northern Railway. Headquarters, Breckenridge, Minn.

James H. Johnson, trainmaster, Fargo Division, Northern Pacific. Headquarters, Dilworth, Minn.

C. H. Lee, terminal trainmaster, Cleveland Terminal, Baltimore and Ohio Railroad. Headquarters, Cleveland, Ohio.

John E. Maun, superintendent, Central Vermont Railroad. Headquarters, St. Albans, Vt.

Fred B. Oren, superintendent, Yazoo and Mississippi Valley R. R. Headquarters, Vicksburg, Miss.

F. F. Small, chief despatcher, Southern Pacific Company. Headquarters, Sparks, Nev.

W. M. Whitenton, operating assistant to vice-president, Texas and Pacific Railway. Headquarters, New Orleans, La.

Traffic.

Sidney C. Anderson, traveling freight solicitor, Pennsylvania Lines West of Pittsburgh. Headquarters, Memphis, Tenn.

C. J. Balfour, district passenger agent, Southern Pacific Company. Headquarters, Los Angeles, Cal.

O. R. Bromley, division freight agent, Michigan Central Railroad. Headquarters, Grand Rapids, Mich.

Rush Carlton, city passenger agent, Pennsylvania Lines West of Pittsburgh. Headquarters, Cincinnati, Ohio.

F. B. Dickison, traveling passenger agent, Baltimore and Ohio Railroad. Headquarters, Cincinnati, Ohio.

Leon O. Dismuke, division passenger agent, Houston and Texas Central Railroad. Headquarters, Dallas, Texas.

Thomas Evans, general agent, Michigan Central Railroad. Headquarters, London, Ontario.

Josiah D. Greene, division freight agent, Boston and Maine Railroad. Headquarters, Troy, New York.

Roy Hinchman, traveling passenger agent, Baltimore and Ohio Railroad. Headquarters, Dayton, Ohio.

J. D. Kenworthy, assistant general passenger agent, Denver and Rio Grande Railroad. Headquarters, Salt Lake City, Utah.

W. B. Knight, assistant freight traffic manager, Missouri Pacific-Iron Mountain System. Headquarters, St. Louis, Mo.

F. S. McGinnis, general passenger agent, Southern Pacific Company. Headquarters, Los Angeles, Cal.

W. H. Mason, commercial freight agent, Baltimore and Ohio Railroad. Headquarters, Uniontown, Pa.

James F. Mead, assistant general freight agent, Atlantic Coast Lines Railroad. Headquarters, Savannah, Ga.

Edward J. Naylor, general traffic manager, Kansas City, Mexico and Orient Railway. Headquarters, San Angelo, Texas.

L. G. Paul, special agent, passenger department, Baltimore and Ohio Railroad. Headquarters, Le Roy, N. Y.

C. W. Seeley, traveling passenger agent, Erie Railroad. Headquarters, St. Paul, Minn.

C. B. Sloat, general passenger agent, Chicago, Rock Island and Pacific Railway. Headquarters, Little Rock, Ark.

Edwin F. Smallwood, division freight agent, Boston and Maine Railroad. Headquarters, Springfield, Mass.

John T. Talbot, commissioner, Association of Lake Lines. Headquarters, Cleveland, Ohio.

George W. Wilt, traveling passenger agent, Pennsylvania Lines West of Pittsburgh. Headquarters, Nashville, Tenn.

Purchasing.

E. W. Hastings, storekeeper, Southern Railway. Headquarters, Charlottesville, Va.

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(b) Those who maintain, repair and test the air brake. Air brake foremen, repairmen, test rack operators, inspectors, etc. This class is small compared with trainmen and is primarily interested in the structural features and detailed operation of the individual devices.

(c) Those who lay out and make the installation. Mechanical engineers, chief draftsmen, car designers, car and locomotive builders, railroad inspectors, etc. These men are concerned most with matters of braking power, leverage, distribution of apparatus on the car or locomotive in relation to other devices, and similar work.

(d) Those in authority who supervise and instruct. Supervisors of air brakes, air brake instructors, road foremen of engines, etc. These officials should have a comprehensive knowledge of both the practical manipulation and the mechanical operation of the air brake system, its individual parts, and the principles upon which this operation is based.

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VOLUME LIX ESTABLISHED 1856 NUMBER 10

A MONTHLY JOURNAL (successor to Railway World, a weekly publication) designed to present an accurate and comprehensive review of current events pertaining to Transportation, Commerce and Finance and to afford a medium for the development of a clearer understanding of the mutuality of interest which exists between those who employ and those who operate the railways.

Publication Office: 612 Chestnut Street, Philadelphia, Pa.

Terms: $3.00 per Annum in Advance
Foreign Subscriptions: $3.50 per Annum in Advance
Single Copies: 25 Cents
Advertising Rates furnished upon application

ENTERED AT THE POST OFFICE AT PHILADELPHIA AS MAIL MATTER OF THE SECOND CLASS

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Important Developments in the Transportation Field

THE SAFETY OF UNITED STATES RAILWAYS

Another "Safety First" record was established by the railways of the United States in the first three months of 1915, when the country's entire mileage of over 250,000 miles was operated with a total of only 65 fatalities (including passengers, employes, trespassers and others) in train accidents. In these three months the railways handled a passenger traffic totaling over 202,000,000 passengers, who traveled a distance of 6,871,150,000 miles. Records of the Bureau of Railway News and Statistics covering the entire period since the present law requiring monthly accident reports went into effect, in 1901, show this safety record never before to have been attained in the entire 14 years.

Another record was broken in number of fatalities in all classes of accidents, including train accidents and other than train accidents, the total, 1,582, being the smallest reported since the heavy toll of trespassers' deaths was included, in 1910. Of this number, 939, about three fifths, were trespassers, the fewest since quarterly figures have been furnished.

This is the second quarter in succession that the railways have broken the record in smallness of total fatalities in train accidents, the 78 reported for October-December, 1914, having been the best performance up to that time. The latest quarter reported cuts under this record by 13. Following the uniform law which governs railway accidents the total has fallen incident to a falling off in traffic, the 202,000,000 passengers of January-March comparing with over 230,000,000 in October-December, while freight tonnage showed a corresponding decline. How "Safety First" has played its part is seen only by comparison with the earlier years, for while volume of traffic has grown about 60 per cent in freight and 80 per cent in passengers since 1902, the total of fatalities in train accidents is only 65 in three months against from 140 to 272 in the successive quarters of 1901 and 1902. Moreover the small 1915 figure includes trespassers and employes not on duty, which the early figures do not.

Recent effects of the "Safety First" campaign are reflected further in a compilation made by the Bureau from the official quarterly returns of the last three calendar years. Fatalities in these three years have been as follows:

In train accidents:—	1914	1913	1912
Passengers	90	78	153
Employes on duty	295	511	631
Trespassers	76	79	99
Others	22	44	70
Total	483	712	953
Other than train accidents:—			
Passengers	113	189	173
Employes on duty	1,628	2,435	2,380
Trespassers	5,168	5,475	5,402
Others	1,510	1,587	1,633
Total	8,419	9,686	9,588
Grand total	8,902	10,398	10,541

With a steady decline from 953 persons killed in train accidents in 1912 to 483 in 1914, the growth in railway safety is marked. In the same time there has been a fall from 9,588 killed in other than train accidents in 1912 to 8,419 in 1914, and a drop from 10,541 in total fatalities in 1912 to 8,902 in 1914.

In these totals it will be noted that trespassers furnished 5,501 deaths out of the 10,541 in 1912 and 5,244 deaths out of 8,902 in 1914. Although there has thus been a decline in trespassers' deaths, such fatalities furnished about 59 per cent of the total in 1914 against about 52 per cent in 1912.

Against the increasing preponderance of trespassers' responsibility for railway fatalities the record made by employes on duty is exceedingly gratifying. From 3,011, or about 29 per cent of the total in 1912, their fatalities dropped to 1,923 in 1914, a little over 21 per cent. Meanwhile passengers killed in train accidents and other than train accidents fell from 326, or 3.1 per cent, in 1912 to only 203, or 2.3 per cent, of the total in 1914.

RAILROAD WELFARE WORK

There has been a notable advance, within recent years, in the interest taken by railways in the social welfare of their employes. The success of railway Y. M. C. A.'s has led to a further extension of the effort, and railway officials now encourage sports and pastimes in which, only a few years ago, they took but a passing interest.

Men who used to gather in the saloons and other so-called places of amusement, now, in many instances, find their desire for recreation so much better supplied by the companies by whom they are employed, that their point of view is being subjected to a refining and elevating influence, which is having a marked effect both upon personnel and service.

Aside from the Y. M. C. A.'s, singing glee clubs and other purely social organizations are encouraged, while athletic sports are receiving special recognition even to the extent, in some instances, of providing fine athletic fields at the expense of the companies.

Under the encouraging influence of the general superintendents at various divisional points, the employes of the Pennsylvania Railroad East of Pittsburgh, have organized and developed a number of excellent baseball teams. These teams during the past season, through a league organization, have been contending for the Pennsylvania Railroad base ball championship. The prizes played for were the W. W. Atterbury cup, emblematic of the championship of the company and the S. C. Long pennants symbolizing the championship of each grand division. These trophies were presented to the winning teams on September 25th, at the Pennsylvania Railroad Y. M. C. A. Athletic Fields, West Philadelphia. They were originally offered at the opening of the 1915 base ball season by Vice-President Atterbury and General Manager Long to stimulate interest in the newly organized baseball league and in athletic sports generally.

PRESENTED BY
W.W. ATTERBURY
PRR
TO
THE CHAMPION TEAM
OF THE
PENNSYLVANIA RAILROAD BASE BALL LEAGUE

THE W. W. ATTERBURY CHAMPIONSHIP TROPHY.

The Atterbury Cup was won by the Williamsport, Pa., team, representing the Central Grand Division, and Mr. Atterbury, who made the presentation in person, had, in part, the following to say:

> Some form of social enjoyment is necessary to every normal human being, and yet to many of our employes the back parlor of the saloon has been their only social meeting place. Other forms of social enjoyment, while harmless in themselves if temperately enjoyed, are, if carried to excess, injurious and impair the mental and physical vigor.
>
> The earnest officer, thoughtful of the safety both of his men and the public, must, of necessity, so organize that he may not only think, he must know, that his men are sane and sound; but he must go farther. If he curtails some method of social enjoyment which, when temperately indulged in, serves in keeping Jack from being a dull boy, but which because of association, overindulgence or intemperance becomes a menace, does it not become his duty to provide some substitute, of a more rational character?
>
> With a recognition of this duty your officers for the past few years have consistently endeavored, little by little, to put into the hands of many of our employes the opportunity to take part, either as contestants or as on-lookers, in the many forms of normal outdoor sports which we are so happily called together to-day to witness.
>
> Probably baseball gives pleasure to more people than any other outdoor game, and to stimulate interest it has been my pleasure to donate a cup to the winning team of the Pennsylvania Railroad Baseball League. The cup must be won three times to become the permanent possession of any team, but to each member of the year's winning team a small gold medal will be presented as a little memento of his skill and success.

The closing of the 1915 base ball season and the awarding of the first Pennsylvania Railroad championship, marks the sucessful beginning of what promises to be a new era of broader and more general interest in clean outdoor and indoor sports of all kinds among the employes of this railroad. Plans for the coming winter include indoor base ball, indoor track events, basket ball, bowling, pool and shuffle board tournaments wherever facilities for these sports exist.

Some idea of the facilities for outdoor sports open to Pennsylvania Railroad men may be gained from the fact that on the Lines East of Pittsburgh there are 32 base ball fields, 32 tennis grounds (each having one or more courts), seven running tracks and one golf course. Five base ball fields, five tennis grounds and one running track are to be added next year, according to present plans.

PUBLIC DISCUSSION OF RAILWAY PROBLEMS

Like the snow ball which grows constantly larger through its adhesive qualities and the energy of the small boy back of it, the railway publicity effort, which has become an increasingly important feature of railway operations within recent years, is assuming important proportions, attracting to it large numbers of prominent men not immediately concerned in railway operations.

A few years ago, business men and even public officials were not in a position to discuss intelligently the problems of the carriers, particularly from the railway point of view. Indeed it may truthfully be said that in those days the friends of the railway, either in public or private life, was as hard to find as the proverbial needle in the hay stack. Through the efforts of the carriers, however, public opinion and understanding have undergone a decided change, and today men not associated with the railways are discussing their problems in a manner which offers much encouragement for the future. For example, relations between the common people and the transportation interests were commented upon by former President Taft recently while sojourning in the North Pacific Coast States. In the course of a public statement Mr. Taft stated that:

> The close and absolute supervision over the management of railroads and the restriction upon the rates charged by them in interstate commerce and in commerce within States, together with the increase in cost of maintenance and of wages through the efforts of labor unions has ground the railroads between the upper and nether millstones. All this is to the detriment of the business of the country, and especially to the comfort and happiness of the wage earners dependent on normal business and normal demand for labor.
>
> We are all in the same boat. The prosperity of one class is dependent on the prosperity of all. This is no reason why we should not repress injustice and punish abuse of power. But it is a reason why we should not indulge in excess.
>
> We must promptly grant increased rates to the railroads when conditions require it. We must not allow the outrageous injustice to continue by which we inaugurate the real reform of parcels post, and do it at the cost of the railroads by compelling them to carry enormous increase of traffic for nothing. We should repeal the full crew bills that impose upon the railroads the burden of employing unnecessary labor. In curing these excesses there is no reason why we should not retain the real progress we have made in dethroning plutocracy.

A warning that fair treatment must be accorded the railroads if the country is to have a return of prosperity, was also sounded by President A. B. Leach, of New York, at the opening of the annual convention of the Investment Bankers' Association of America a Denver, the latter part of September. President Leach, in the course of his address, had the following to say:

> The railroads to-day are facing new conditions. They face them—
>
> 1st. In the character of the service they are called upon to render.
>
> 2d. In the enormous volume of freight and passenger traffic to be handled.
>
> 3d. In the new equipment necessary; safety appliances prescribed by commissions.
>
> 4th. In the always pressing need of new terminals, additional tracks and sidings
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> The Interstate Commerce Commission seems to place great stress upon the need of physical valuation of railroads, and seems to believe that the physical valuation should be made a basis for the interest return upon the capital actually shown in physical property to-day and the rates should be made on that as a base.
>
> I submit to the just and reasonable consideration of the American people, and primarily the American shipping and business men, whether in any business in which we are connected, which has taken a number of years to build up, it would be fair to make its valuation depend absolutely upon the physical property available. Vast sums of money have been spent not only in the development, but also for tangible assets. I do not mean now that necessarily we should capitalize franchises and rights, for from the Commission's viewpoint these rights and franchises are not an asset, but are available only to earn a deficit. The physical valuation of the railway properties will cost a large sum of money (running into many millions), but it will be of little value and practically obsolete when completed, and serve but a small purpose in just and reasonable rate making. The difference to the farmer in the sale of his products, the difference to the merchant in the cost of his goods, the difference to any shipper in the advance of rates requested by the railroads, is so small that it is practically a negli-

gible quantity. May I not submit, too, that the watchword of Americans and America is "progress." The past of each and every one of us is full of mistakes and regrets; to-day let us have confidence, and feel assured that from our errors and mistakes of the past we can reach to higher levels of progress and development for our country and our common good. Whatever the railroads' history in the past has been signifies but little at present to the railroads and the communities they serve, unless it teaches us fair treatment for each other and common efforts for the common good. Let us not forget that the railroads are furnishing the life currents of a large portion of the country; they are the largest employers of labor, they are the largest purchasers of supplies and materials, they constitute one of the greatest, if not the greatest, of American industries. The Interstate Commerce Commission—I find no fault and make no criticisms, but simply make the statment—was appointed not alone as guardians of the shipper, but also as the guardians of the railroads, and if our railroads are to succeed, a new vision and a new disposition on the part of this Commission and of the State commissions must be brought about by the pressure of public sentiment, by the pressure of the business world, by the pressure of the investment world. For the railroads must not only be solvent, but must be in position to aggressively and actively push forward their development. In this great West, the need for additional railroad facilities, additional mileage, is felt constantly. Increased railroad facilities can do more—and will do more—to develop the country than any other one agency. Take away from the investment world the confidence in railroad securities, the staunch belief that investments in railroads will always receive fair treatment, and the railways of the country face bankruptcy. I could name a long list of railroads which have fallen by the wayside, and are now in the hands of receivers, and although I will agree with the most radical as to the mistakes or errors—and crimes, if you will—that have been committed in handling some of these properties, I will say to you, nevertheless, that to-day is the time to foregt; let us leave the past behind and forget what has been done.

The new thought that is in the mind of the railroad managers to-day is explained by the plan of the Atchison management, carried out by what is known as the "Harmony Special." The railroads are prepared and ready to meet the public on a fair basis, on the basis of service, on the basis of mutual justice. But the public, and public sentiment, should meet the railroads in a similar manner. What would it benefit the State of Colorado, what would it benefit the country as a whole, if as a punishment of the sins of the past, the railroad mileage of the country is forced into the hands of a receiver, if lack of confidence in this great American industry is abroad and consequently new developments cease? I insist, there is none. I would like to leave with the convention, I would like to leave with the State of Colorado, I would like to leave with the vast Western world, of which I am proud to be a son, the thought, that the day has come for a new alignment of public thought, and of public effiort, when we shall all join, the shippers, the railroads, the investment world, on the basis that with the conditions of to-day, the need for fair treatment accorded to the railroads is imperative, and that from to-day on the public should give the Commission and their servants to understand if recent developments have not already taught that lesson, that what this country needs is service, what we need is good equipment, what we need is railroads prepared to push developments, and this can only be realized by such fair treatment of the railroads as will restore the confidence of the investment public. Until that time and I believe and hope it is coming nearer every day, we will not get back that degree of prosperity of which this abundantly resourceful country, when given a fair chance, is capable.

As a third example of the part men outside of the railway business are taking in the defense of the transportation industry, we quote briefly from an address recently made at Spring Lake, N. J., during the convention of Electric and Power Men, by Mr. Thomas N. McCarter, president of the Public Service Corporation of Newark:

> The restrictive regulation, as practiced by the Interstate Commerce Commission, has well-nigh brought the railroads of this country to the brink of disaster, and at the moment there is no relief in sight. I do not personally own a steam railroad stock, or a share of steam railroad stock, and yet, as a patriotic American, I resent the treatment which that great industry is receiving, and I wonder how long public sentiment will stand behind the Commission in its policy.
>
> The public seems to think that no one is injured except the isolated millionaire bondholder, forgetting that the railroads of the country are owned by the people of the country, as is well illustrated by the fact that the savings banks of the country alone own at least a billion dollars of bonds of the railroads.
>
> I assert that the history of the rate regulation movement in this country to date—not only as practiced by the Interstate Commerce Commission with regard to railroads and by State commissions with regard to public utility corporations—shows it to be, as practiced by the theorist, the demagogue and the politician, a most dangerous menace to the companies involved and to the economic welfare of the communities they seek to serve.

"WATCHFUL WAITING"

In view of the attitude of many railway officials toward the inroads made upon their revenues by legislative enactments and by the regulations and rulings of the Interstate Commerce Commission and the various State commissions, it is apparent that they have adopted a policy of "watchful waiting" far beyond anything contemplated by its chief exponent in Washington. We might even go farther and state that if the devastating influence of this policy was as apparent upon our national welfare as it is upon the carriers, no "peace at any price" influence could withstand the righteous anger of a thoroughly aroused people.

Forbearance and patience cease to be a virtue when the property rights of a vast body of American citizens are being attacked and in many instances destroyed. Today an alarmingly large number of well and honestly managed railways are in the hands of receivers, while others have been so restricted in their operations as to make the future fraught with disagreeable possibilities. Dishonesty there has been in railway management and undoubtedly its blighting influence has had its effect upon innocent contemporaries. Those, however, who have taken advantage of the trust imposed in them in virtue of their positions, represent so small a percentage of the army of honest and conscientious railway men, that a railway commission using such a weapon for the purpose of causing widespread financial distress among those who are making an effort to meet their obligations both to the public and to their security holders, must stand accused of being either utterly devoid of appreciation of the real problems confronting the carriers, or so biased by public influence as to be unable to render a fair judgment.

It is not necessary to discuss certain rulings which have recently been made by regulative bodies. Their harmful effect is well known both by carriers and those interested in a legitimate return upon railway capital. Railways are feeling, to an extent never before experienced, the deadening influence of a regulative policy to which is attached no financial responsibility. It may be difficult to determine how this influence may be offset, but it is easy to understand that the policy of "watchful waiting" has long since outgrown its usefulness and the railway officials who continue to employ it, can well be accused of neglecting properly to protect the properties entrusted to their care.

The American people want an efficient railway plant and they are assuredly willing that a proper compensation be paid for the services rendered by this plant. While they are a little better acquainted with the problems which confront the carriers than they were a few years ago, they are still lamentably ignorant of many things they should know; and the politician, far more active in his publicity work than the railway official, keeps the pendulum well swung toward the side of restrictive regulation.

It would appear about time for the carriers, through a concerted action, to organize a permanent publicity association worthy of the great business which it represents, and able to keep the public fully informed with regard to railway developments and the effect of restrictive influences upon individual welfare. Many roads and, in some instances, the higher officials of these roads, have within the past few years, performed an excellent service in bringing to the attention of the public certain matters pertaining to railway requirements, but at best these efforts have only been sporadic and have utterly failed to reach effectively the majority of those whose understanding and influence are necessary, if a fair consideration is to be given the questions relating to railway operations and developments.

The railroads need and need badly, a national organization big and broad enough to represent them in handling questions of great public import. Through such an association the public would be kept reliably and accurately informed with regard to their own rights and gain a broader knowledge of the rights and requirements of the railroads.

We bring to the attention of our readers the following editorial which appeared in Leslie's Weekly of September 2d. It is likely that this editorial may be considered extreme, even by a railroad official. Nevertheless it represents the unbiased opinion of a great national weekly and points to the utter inadequacy of the present policy of "watchful waiting":

> The Interstate Commerce Commission must be reorganized or else it must go, excepting the two members who, alone of all that responsible body, seem to realize the precarious condition of the country with one eighth of its railroads in the hands of receivers and one half the rest bound the same way. The two exceptions are Messrs. Daniels and Harlan. They favor granting the railroads the increase they need. Mr. Daniels was appointed by President Wilson and it is believed that he expresses the President's views. If Mr. Wilson would remove all the Commissioners who have failed to rise to his own superior judgment, the change would be welcomed everywhere and would furnish the best evidence of the sincerity of the President's declaration in favor of giving business a fair show.

The inexplicable antagonism of the majority of the Interstate Commerce Commission towards the railroads meets widespread reprobation. The officials of the railroads, their hundreds of thousands of stockholders and every one of their million employes, should stand ready to make a fight against the Commission as now organized. If President Loree, of the Delaware and Hudson Railroad, is correctly reported, the members of the Commission are not attending to their duties as they should. It is said that only one commissioner heard the evidence in the action brought against the anthracite railroads, which threatens a cut of $8,000,000 in the income of the latter. The final report in the case was prepared by a lawyer who from the outset was hostile to the railroads and who had much to do in instigating the action against them. These accusations are worthy of serious attention. We have no doubt that the President and the incoming Congress will inquire into them thoroughly.

It is no laughing matter that one eighth of the railroads of this country are in the hands of receivers. It means that war has been made upon our second greatest industry. War should provoke warfare in return. Justice is on the side of the railroads. The Interstate Commerce Commission concedes that the cost of labor and material has shown a progressive increase in the past years, while none of the railroads show a return beyond 6½ per cent on their undisputed value. This leaves nothing for emergency necessities caused by floods and other disasters. No business can secure capital if it be limited to an earning of from 4 to 6 per cent with no reserve for emergencies.

The railroads are unable to provide the necessary improvements and betterments they urgently need, and that would involve, according to a standard authority, an expenditure of three million dollars a day continuously for a period of five years, or the enormous aggregate of five billion dollars for labor and material.

The time has come for the railroad managers of the country to actively organize with their shareholders and their employes into an army of earnest, patriotic and determined citizens, an army not afraid to meet the "busters" and "smashers" face to face at Washington or any where else.

RAILWAY MAIL PAY AND PUBLIC OPINION

If the press of the country is any criterion, public sentiment has become thoroughly aroused over the unfair treatment which has been accorded the railways by the Post Office Department. At the present time the carriers are being forced to carry enormous quantities of merchandise shipped under parcel post, for which they are receiving no compensation. Persistent efforts have been made to rectify this grave injustice but the Post Office Department and certain members of Congress have antagonized every effort on the part of the carriers to reach some equitable basis on which the railways could be properly reimbursed for the service they perform.

The Government, and particularly the Post Office Department, appears to be engaged in a relentless warfare to cause the transportation agencies to carry a large portion of the mail without compensation, in order that a favorable showing may be made upon the yearly balance sheet. While the Government may have the power to compel the railroads to carry the mails at a loss, surely a Nation that demands frank and honest dealing between its citizens and which makes an effort to set a high ideal in international affairs, should not set an example of what practically amounts to highway robbery because the victim has no adequate redress. One Congressional committee has already submitted a report favoring more liberal compensation, and the forthcoming Congress should certainly either accept these findings or be in a position to prove their falsity. The question of ethics is an important one in this respect, and the interest in the controversy, on account of the glaring injustice done the carriers, has reached even beyond our national borders. President Wilson has expressed the hope that "the problems of the railroads will be met and dealt with in a spirit of candor and justice," but according to the present attitude of certain Government officials there appears to be no real desire to accord the railways fair play.

This is particularly emphasized by a recent step taken by the Treasury Department which, acting in concert with the Post Office Department, has issued an order which became effective August 16th, directing that all public moneys and securities transported between the treasury, the sub-treasury and the banks shall hereafter be carried by registered mail, instead of by express. This order involves results to the railroads concerning which the public should be fully informed.

The express companies have hitherto earned about a half million dollars yearly by the performance of this service. Approximately 50 per cent of this sum, or $250,000 annually, was paid by them to the railroad companies for the facilities of transportation.

Both the railroads and express companies will be deprived of these revenues, but the railroads, unlike the express companies, will by no means be relieved of the service, since it is obvious that whether the public moneys and securities are sent by express or by mail, the facilities of the railroads must be used in either case.

For carrying the public moneys and sesecurities as mail the railroads will receive no compensation whatever until the Government again weighs the mails to ascertain the tonnage being carried. This is done only once in four years. Even then, the rates the railroads will receive for transporting the funds will be so utterly inadequate, by comparison with the unusual value of such shipments and the fair worth of the service to the Government, as to amount practically to nothing.

The rates paid the railroads for carrying the mails are based upon the service of transporting such things as letters, printed matter and small merchandise. These make up the great bulk of the mails, and with few exceptions are of relatively small intrinsic value. Rates commensurate with service of this character cannot, by any recognized economic principles, be held commensurate with the service of carrying enormous sums in money and negotiable securities, the shipments of which by the Government probably exceed two billions of dollars annually.

The new arrangement has enabled the Treasury Department to claim that a saving will be made equivalent to the entire amount hitherto paid to the express companies, because the Treasury is to receive from the Post Office Department the privileges of free postage and free registration upon all shipments of currency and securities.

It would be a great error, however, to suppose that the revenue loss to the carrier companies will be a real saving to the Government. The Treasury expense, it is true, may be somewhat decreased, but Post Office expenses will necessarily be materially increased.

This will inevitably result from the fact that there is to be imposed upon the Post Office Department the performance of important new duties hitherto regarded as lying wholly outside the proper scope of the postal service.

Moreover, the cost of insuring public moneys and securities in transit has hitherto been borne by the express companies and included by them in their charges. This expense must now be assumed by the Treasury Department and will be an offset to the gain exhibited by avoidance of the express charges. The Treasury Department will naturally be obliged to make arrangements for insurance through other agencies, presumably the corporations which are engaged in general commercial insurance.

The net results of the change, therefore, seem to be:

1. To oblige the railroads to render for practically nothing the actual transportation service required in effecting transfers of the public funds.

2. To separate the risk of insurance in transit from the general transportation duty and turn this business over to new interests, at rates not as yet disclosed.

3. To transfer from the express companies to the Post Office Department the duties involved in the actual handling, collection, delivery and custody of thousands of extremely valuable packages not hitherto carried in the mails.

In this analysis it would appear that the only real and tangible saving of expense to the Government lies in the substantial elimination of payment to the railroads for the transportation service.

In other respects nothing but a change in agencies is effected, which is as likely to increase as to decrease costs.

This must be held true unless the Post Office Department is to be credited with the ability to operate more efficiently, and at lower labor costs, than the express companies, or unless the Treasury Department is enabled to obtain abnormally low premium rates from the insurance companies, by reducing the risk in transit at the expense of the railroads.

For instance, insurance premiums are naturally based upon the opinions entertained as to the risk, and the risk assumed, in the case of money shipments, certainly depends largely upon the degree of physical protection afforded. It is in every way probable that the new interests which are to be awarded the business of insuring the Government funds in transit will insist upon unusual forms of protection, as part of the bargain, especially in the case of the very large individual sums that are quite commonly transported in the financial operations of the Government.

It may well be anticipated, therefore, that the railroads will be called upon, from time to time, to carry not only the Government's money, but also to carry, free, armed guards, as "agents in charge of the mails," or even to furnish special cars without additional compensation.

For precedent upon these points, it may be recalled that when the Treasury Department, last summer, shipped $100,000,000 in gold from Philadelphia to New York, as "parcel post," the Post Office Department required four special cars, for which no additional payment was made, and also the transportation for the round trip of 100 guards without payment of fare.

If by exacting such forms of special service, and insisting upon the free transportation of armed guards, as postal agents, the Treasury Department is enabled to obtain abnormally low rates of insurance, the saving will be quite evidently be effected at the expense of the railroads.

Under the practice heretofore of shipping the Government funds by express the express companies furnished the guards, supplied the safes in which the moneys were carried and paid the railroads for the use of their facilities and for the transportation of the money, the safes and the guards.

The laws of this country limit the Post Office Department to the payment of an indemnity "not to exceed $100 for any registered piece." The indemnity on the parcel post, upon payment of an extra insurance charge, is limited to $50 per package. In the International Postal Union mails the indemnity limit is 50 francs per piece, or about $9.35.

Does it not seem apparent, from the small amount of indemnity permitted by law, that Congress has never intended that the mails should go beyond a service of ordinary convenience to the general public?

If the Treasury Department can use the Post Office Department, and consequently the railroads, in the manner contemplated by the order respecting the shipment of public moneys, what is to prevent the War and Navy Departments from shipping their supplies by mail, with United States troops and marines as armed guards, to be carried free by the railroads as "agents in charge of the mails"?

Recently the Railway Business Association has been conducting an investigation which had for its object the sounding of public opinion with regard to the railway mail pay situation. The results of this investigation have been embodied in a bulletin which is entitled "An Address to Members of the 64th Congress by Business Men Based upon a Business Analysis of a Business Question."

The bulletin asks business men in every State to study the question and take it up with their Senators and Congressmen. The "space method" advocated by the Post Office Department is vigorously opposed and it is pointed out that during the past ten years the post office receipts have increased 100.5 per cent and total railway mail pay only 27.7 per cent.

The Association urges that mail pay shall not again be made a rider on an appropriation bill or dealt with at the crowded end of a session. Here are the conclusions which business men and members of Congress are requested to consider:

1. Mail pay ought to be adjusted according to some fair standard fairly applied.

2. Mail pay ought not to be affected by the Post Office Department balance-sheet. The roads should receive not what the Department is willing to pay them but what the service is worth. Two successive postmasters general have advocated government ownership of certain public utilities. These considerations ought not to enter into the fixing of compensation.

3. Congress should lay down the rule that compensation shall be equivalent to what private shippers would pay for similar service. There is no more reason for taking the postal deficit out of the railways than out of letter carriers or building contractors. Congress should not hold the roads down to the lowest possible limit. Poor railroads make a poor country.

4. Fixing of rates and measurement of service to be paid for should be subject to review by some government body not directly interested in showing a surplus for the Post Office Department. The postmaster general is an interested party. He should not have final arbitrary authority over matters in dispute between the railroads and his Department.

5. Amount of railway service to be paid for should be determined by measurement of actual service performed over a test period never by arbitrary estimate not subject to a check-up by the facts. Under the weight system now in use Department subordinates report what the scales record. Under the proposed "space" system they would perform a function involving judgment and putting a much greater strain upon their impartiality as between the carrier and the government.

6. Weight should be a factor as well as car-miles and should be taken at least annually. Weight is the actual measure of service performed, the measure used by the government on postage and the measure by which freights are paid. The present law provides for quadrennial weighings. This is too seldom. Increase of actual weight between weighings involves a great loss to the carriers, as notably shown following the establishment of the parcel post. Annual weighing and annual readjustment of pay would approximate to fairness as compared with the quadrennial system.

7. Total mail pay for each road should be large enough to include fair compensation for every facility furnished, and for every service rendered. Present practice takes no cognizance of use of apartments in combination cars, of use of side-track by cars required in advance of departure, of specially equipped rooms in stations, of use of

station trucks, of cranes, mechanical catchers and bag receivers. Neither is cognizance taken of labor of employes in handling closed pouches in baggage cars or of transporting mail to and from post offices and stations and between stations of different railways at junctions when not more than a quarter mile apart. Total pay, moreover, falls short to the extent of the gross inadequacy of compensation for the parcel post.

8. Payment to each road should vary according to length of haul, speed and frequency of mail trains. The present law ignores all these.

A joint committee of the Post Office Department and railroad representatives agreed that if empty space hauled on account of the mail service should be charged to that service earnings in a test month were for mail 3.37 mills, for express 3.86 mills and for all non-mail passenger train traffic 4.34 mills per car-foot-mile. The Associate Statistician of the Interstate Commerce Commission, Dr. M. O. Lorenz, estimates that a 10 per cent increase over present compensation probably would not constitute over-payment.

LOCAL INFLUENCE OF A RAILWAY

Much has been said within recent years regarding the effect of railway prosperity upon the general welfare of the Nation and it has become a recognized fact among economists that without a reasonable measure of success in the transportation industry, the balance of the country must correspondingly suffer. The reasons for this are not difficult to locate. In the first place, the railways are enormous spenders and through their annual purchases millions of dollars are distributed through all branches of trade. Their salary rolls are the largest of any single industry in the world, while the great supply business, directly dependent upon them for their success, represents an enormous investment of capital and a tremendous employment of labor. In addition, railway securities represent the backbone of most important investment and are held in large quantities by our great financial institutions, while private investment in railway bonds and stocks affects the income and welfare of hundreds of thousands of individuals. Considering this broad sphere of influence, it is little to be wondered at that national prosperity is so dependent upon the welfare of the railways.

While the public has, in a measure, come to realize the importance of these relations, they often lose their force with the average citizen because of their lack of local application. Probably few people realize the part played by individual roads in the business, social and industrial life of a particular community or State. This more localized influence is interestingly set forth in a statement recently made by R. C. Clancy, assistant to the general manager of the Southern Pacific Company, in referring to the effect of the operations of this company upon the welfare of California. He said:

> In San Francisco, the Southern Pacific employs over 5,000 people, and its wage disbursements amount to more than $5,000,000 a year. More than 5,000 are on its payroll in Oakland, with an annual disbursement of over $5,000,000,—so that in San Francisco and Oakland more than 10,000 families, or the equivalent of 50,000 people, draw their sustenance direct from the Southern Pacific, and spend over the counters of the business houses of San Francisco and Oakland approximately $8,000,000 a year.
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> Sacramento and Roseville, like San Francisco and Oakland, are, but a short distance apart, and at these two points nearly 5,000 families or 25,000 people are maintained by the Southern Pacific payroll which annually amounts to approximately $4,500,000. In Los Angeles the number of employes approaches 5,000 with a payroll of $4,500,000; San Jose, 360 employes with a payroll of $335,000; Bakersfield, 860 employes with a payroll of over $1,000,000; Stockton, 400 employes with a payroll of over $400,000; San Luis Obispo, 360 employes with a payroll of over $400,000; Dunsmuir, 630 employes with a payroll of $750,000; Fresno, 500 employes with a payroll of over $500,000; and Tracy, 485 employes with a payroll of over $500,000.
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> It will be observed that even in the twelve cities named the amount of money disbursed for wages annually by the Southern Pacific is in excess of $23,000,000. A careful estimate shows that the Southern Pacific pays to California labor, and to California business men and producers for products used in the conduct of its business approximately $40,000,000 a year. All of this in addition to affording a class of freight and passenger transportation which places the producers of California in communication with the markets of two hemispheres, affords quick, convenient and safe commercial and social intercourse, multiplies and enlarges the attractiveness of California to the tourist and investor, thus enabling the people of California to reap the full benefit of their many natural endowments. It may well be said that the Southern Pacific is one of California's great assets.

What the Southern Pacific has done for California, other roads have done for other sections of the country and examples could be multiplied until shown that not a State or a city of any size in the nation but has felt the direct beneficial effect of the transportation industry. When, in addition, it is considered that no State or municipality can develop its full commercial and industrial possibilities without an adequate and efficient transportation service, it takes no further argument to show the imperative necessity of offering every legitimate opportunity for the full development of a progressive railway plant.

AN OPEN POLICY

Railway managers are finding it more and more worth while to take the general public into their confidence and to take the trouble to explain to them the character of their problems and the requirements of the service.

The secretive methods which so largely dominated railway operations of a quarter of a century ago, have practically disappeared and where employed to-day are looked upon with distrust not only by the people at large but by the great leaders of the industry, who now fully recognize the necessity and right of the public to be kept informed regarding railway requirements and developments.

These publicity methods have been rapidly extended until to-day they apply, to a greater or lesser extent, to all branches of the service; and some railroads have gone so far as to specially encourage the attendance of small and individual stockholders at the annual meetings, at which time questions as to policy and the necessity for additional expenditures are frankly answered and discussed.

The Southern Railway reports that at its annual meeting of stockholders on October 12th, a large number of individual stockholders attended in person and a great majority of the total capitalization of the company was represented.

Following the policy inaugurated last year the meeting was open to the public and there was full and frank discussion of the report covering the operations of the company for the fiscal year, ended June 30th, which was submitted to the stockholders at this meeting, and of the plans and prospects for the coming year. President Harrison presided and a number of the vice-presidents and other principal officers were in attendance, and all questions asked by stockholders in regard to the management of the property were fully answered and full information given concerning the affairs of the company and conditions in the territory it serves.

This is assuredly a long step in the right direction, and while already followed by a number of other important carriers, it constitutes a policy which could be well adopted by every transportation interest in the country.

ANOTHER FAILURE UNDER GOVERNMENT OWNERSHIP

Government railways of New South Wales fell $113,622 short of making their interest charges during the year ended June 30, 1915. This deficit resulted notwithstanding the addition of over a million dollars to revenues from rate increases determined upon a year ago, and without this assistance the deficit would have reached almost $1,200,000. The figures are contained in the annual report of the system which has just been received in Chicago by the Bureau of Railway News and Statistics.

Like the private railways of the United States the government roads of New South Wales have felt the burden of advancing wages, cost of materials, and interest. To these three causes, which have grown worse in the face of smaller revenues, is laid the heaviest blame for the poor showing for 1915. Unlike the private railways of the United States, however, the government roads have enjoyed in the past year liberal increases in rates, both freight and passenger, to offset the rising level of expenses.

Increases in freight rates of 10 per cent uniformly and in passenger fares of from 5 to 50 per cent were allowed by the Government to government roads a little over a year ago, which it was expected would bring an added revenue of $1,750,000, or 5.3 per cent of the gross operating revenues of the year before. A similar addition to revenues of United States roads would equal about $160,000,000, on the basis of the last fiscal year, over five times the amount granted Eastern and Western roads by the Interstate Commerce Commission in the recent advance rate cases.

The Government system's deficit in 1915 was in spite of these rate increases. As a result of the war's interference with business, gross revenues for the year, at $37,092,409, fell $612,305 under the year before. When the impending loss became evident, says the report, "steps were taken to curtail the working expenditure in every possible way without impairing safety or efficiency." By this means expenses were cut $480,464. Appplication was made to the Court of Industrial Arbitration for suspension of clauses in the wage awards providing for periodic advances in wages and salaries but this was refused. Rising pay rolls which consequently continued consumed $569,282.

Net revenues from operation fell $131,841 to $11,227,050. Upon this, however, was heaped $11,340,672 in interest charges, an increase of $1,001,399, leaving a deficit of $113,622 for the year in place of a surplus the year before of over $1,000,000. Interest on new construction work is blamed for the deficit.

Under the rate advances New South Wales government railways in the year just closed received an average of 1.15 cents per passenger mile, against 1.12 cents the year before and 1.05 cents in 1913. This average is held down by the great preponderance of second class travel. Under the advanced rates certain "cheap excursion fares," first class, are five cents a mile.

Freight rate advances brought an average revenue of 1.90 cents per ton mile (against 1.74 cents in 1914), over double the average for United States railways, and this, moreover, covers only road haul. There was an average revenue in addition of 23.39 cents per ton from "terminal charges." This is included in the United States average, road haul plus terminal charge here being less than half the road charge alone in New South Wales.

AN ACT OF HEROISM

If the individual acts of heroism which are performed by railroad employes in the daily routine, were fully recorded, they would offer a striking example of the virile quality of American manhood. Lives have been, and are being, constantly risked and even sacrificed, to save those who have become suddenly endangered; and many an engineer has stood by his throttle and gone to certain death, rather than desert his post at a time of great danger to those for whose safety he felt responsible. While unheralded, his act is no less brave than that of the commander of some great battleship who, in upholding the traditions of the navy and the nation which he represents, goes down with his ship.

We have all read in fiction, if we have not known of it otherwise, of the man who ran out on the pilot of the plunging, sweeping locomotive, leaned far ahead and snatched a little child from the tracks, out of the very hand of death. Such an act has recently been duplicated in actual service by Harry E. Duey, a brakeman of the Tyrone division of the Pennsylvania Railroad, and the following is a brief story of his heroism as officially published by the Pennsylvania Railroad:

HARRY E. DUEY.

"On July 13th a train of loaded cars was coming down the Snowshoe Branch of the Tyrone division from the coal mines of Centre county, Pa. As the train rounded a curve on a sharply descending grade near Clarence, a boy of three or four years was seen sitting on the track only about 200 feet ahead. A string of empty cars on a siding had hidden him from earlier view. The engineman threw on the brakes, exclaiming, as he did so, that the rails were wet and that he didn't believe he could stop in time.

"Brakeman Duey was on duty at the front of the train and was in the engine cab on the fireman's side. He saw at once that there was only one chance to save the child's life, and that was at the great risk of his own. Without an instant's hesitation he dashed along the running board and gained the pilot just in time to lift the boy clear of the wheels and danger. The child was found to be the son of a coal miner at Clarence.

"Mr. Duey, who is 27 years old, was born at Sunbury, Pa. He has been in the service five years and is the son of a former Pennsylvania Railroad man. He is active in the Y. M. C. A. and in athletics. He has been specially commended for his brave act.

MODERN COMPETITION

"Yesterday it was the rivers and canals, to-day it is the suburban and interurban electric service and automobile, to-morrow it may be the aeroplane." Thus a prominent railway official summed up some of the competitive influences past, present and future, with which railway managers have had and may have to contend, outside of their immediate field.

The vigorous effect of water competition is too well appreciated to need comment. The competition of the automobile although not so well understood, is nevertheless making inroads upon the revenues of certain carriers and is likely to become more general. While aeroplane competition is yet of the dim future and purely speculative, those familiar with the progress made in this branch of transportation, look for a further development which sooner or later will make it an important factor in the movement of at least persons, if not things, from place to place.

The modern railway, therefore, has not only to meet the competition in its own family—that is of the parallel line or lines reaching common trade centers, but there are other factors which must at least be taken into consideration if the supremacy of our present railway system is to be maintained. While the change from steam to electric power will follow easily and naturally, the competition of the automobile and perhaps later, of the aeroplane, will not permit of a similar solution, and the supremacy of the railroad can therefore only be maintained by a constantly improving excellence of service combined with reasonable charges. These competitive influences generally appear too vague to the average railway man to be thought worthy of serious consideration. It might not be inappropriate to point out, however, that the influences of water competition, of electric interurban and suburban service and of the automobile, are already strongly felt in many localities, so that even without the aeroplane, the necessity for the highest grade service is clearly apparent.

The members of the Cincinnati Railway Club had the good fortune at their September meeting to listen to an address by T. C. Powell, vice-president of the Cincinnati, New Orleans and Texas Pacific Railway, on "The Railway and the Automobile." Mr. Powell after briefly reviewing the developments of transportation from the earliest known movements of man to the present day, discussed the present and probable future effect of the development of the automobile upon the railway industry, in the following paragraphs:

> The automobile, both for freight as well as for passengers, is coming into its own. Highways are being improved for its benefit and part of the very taxes paid by the steam railroads is being used to provide smooth roads and streets for the benefit of a possible and very probable future competition.
>
> My own experience in this country and abroad, that is, where the roads are good, shows that the average mileage made is 20 miles per hour, and this is confirmed by the experience of others. Short distances can be made in better time per hour.
>
> The same kind of service can be obtained on some feight, and when it is understood that this time applies from door to door, the serious nature of the competition can be realized.
>
> There are now nearly two million motor cars in this country.
>
> In a year there will be at least two million automobiles exclusive of auto trucks.
>
> Allow each automobile an average annual mileage of five thousand miles—(many travel 20,000)—and you have a total mileage of ten billion automobile miles. Allow an average of two passengers to each automobile and you have a total of twenty billion passenger miles.
>
> Not all of this is taken from the steam roads, but the proportion of people traveling by automobile, who otherwise would travel in some direction by railroads, is very important.
>
> "Touring" is not a Twentieth Century invention; on the contrary, a writer who has made a study of it and has written a book called "Touring in 1600," says that he had the opportunity of consulting thousands of diaries, letters and other accounts of that period, descriptive of the various journeys throughout the world entered upon for reasons other than business.
>
> As Sir Francis Bacon (who lived between 1561 to 1626) said in his "New Atlantis"—"we maintain a trade, not for gold, silver nor jewels; nor for silks; nor for spices; nor any other commodity of matter; but only for God's first creature, which was light; to have light (I say), of the growth of all parts of the world."
>
> All the world likes to travel; and travel brings about an exchange of products.
>
> The point I want to emphasize is that this desire for travel is as strong now as it ever was, and is probably stronger.
>
> The facilities are better; but the serious feature for us to consider is whether these facilities are the ones which the steam railroads furnish or whether the public is turning to the automobile, the motor cycle, the motor boat, the electric traction line or even the aeroplane for a medium of transportation.
>
> Travelers have the right to ask that the passenger stations shall be well arranged and clean; that the attendants shall be courteous and attentive; that the officials and all those in authority

shall be intelligent and well fitted for their positions.

They have the right to demand that, upon paying the price, they shall be provided with the accommodations for which they pay, and that they shall be transported to their respective destinations in comfort and safety.

The shipping public, upon paying the price, are justified in asking that their goods shall be handled with care at all times and delivered at the designated point promptly and without unnecessary detail or harassing regulations.

In short, the traveling and shipping public are becoming posted as to the relative merits of all forms of transportation; and to retain their patronage, the steam railroads must enhance the efficiency of their organizations, recognizing that the only reason for the existence of a common carrier is to transport from place to place, passengers and merchandise, safely and expeditiously, and without undue or unreasonable charges or regulations.

THE PASSING OF THE DEMAGOGUE

Great should be the rejoicing that the demagogue no longer occupies the prominent position he did a few years ago. His decline recalls to mind statement that "You can fool some of the people all the time and all the people some of the time, but you cannot fool all of the people all of the time." While this travesty on human justice still flourishes in certain localities, an increased public interest in and better understanding of the great problems confronting the nation, have temporarily at least, made it necessary for this stripe of individual to become increasingly cautious. The nostrums which he used to administer in allopathic doses, have, in many instances, already assumed homœopathic proportions, while the patient often refuses to swallow even the smaller dose, having learned, through sad experience, that the sugar coated pellets offered do not produce the beneficial results claimed by their quack exponents.

Under the head of "Swat the Fly," the official organ of the Traffic Club of Chicago, in the following editorial, pays its compliments to individuals of this character:

> Abuses will creep into almost every line of business. They will appear in every municipality. Constant vigilance seems powerless to prevent them. But unceasing effort toward their elimination is highly commendable provided it is based on common sense and is inspired by a desire for real, not imaginary, betterment.
>
> In the struggle to eliminate and prevent these abuses there are found many who pride themselves upon being reformers. Some of them are sincere, sane, capable, and possess well-balanced minds which they use toward good ends. But there are more of the swash-buckling variety who feel it their sacred duty to attack any and everything which they do not understand. And if through sentimentality and emotionalism they can arouse passion, prejudice and hatred, through which their object can be accomplished—whatever it be—they secretly chuckle with glee, rake in the sheckels from lecture platforms, and, Fagan-like, rub their unclean hands. It matters not to them how many honest men or enterprises suffer so long as they catch one culprit in the meshes of their cunning, and, incidentally of course, reap the harvest of riches which flows from the prominence they secure for themselves by constantly posing in the lime-light.
>
> Business has tolerated such individuals long enough. It is time that the public is shown what dangerous creatures these mental disease-breeding, human insects are. Their wrecking influence must be exterminated. They must be completely discredited by prompt and effective action. SWAT THE FLY.

THE WAR'S EFFECT UPON IMMIGRATION

Immigration statistics compiled by the American railroads for ten years ended June 30, 1915, indicate an effect of the European war which will be felt for years to come in the industrial, economic and social life of this nation through a check which will be placed on development as a result of a scarcity of immigrant labor and slow growth of population. Already it has had a deleterious effect upon passenger earnings of the transportation companies, having curtailed their revenues several million dollars.

Prior to the declaration of war 1,097,041 immigrants had come here during the preceding twelve months, while for the subsequent period only 217,236 persons were admitted through the ports of immigration. The decline is shown in a comparison of figures for 1914 and 1915 for the leading ports, as follows: New York, 1914, 878,052; 1915; 178,416; Philadelphia, 1914, 56,857; 1915; 7,114; Baltimore, 1914, 39,048; 1915, 3,017; Boston, 1914, 80,899; 1915, 19,346; New Orleans, 1914, 2,628; 1915, 1,694; Galveston, 1914,6,709; 1915, 2,272. Norfolk was the only American port which showed an increase since the war, there having been 106 immigrants who arrived there in 1914 and 222 immigrants in 1915. Canadian immigration from Europe showed as striking a decline as in America, there having been 32,742 immigrants in 1914 and 5,155 in 1915.

Railroad officials point to the immigration situation as alarming from an industrial aspect as with the continuation of the war the falling off will be more marked, as indicated by figures for the last few months. Contractors and other large employers of foreign labor will feel the effect most noticeably for experience has proven that with the assimilation of American customs and ideas it is seldom that more than the first generation of foreigners continue as laborers, their thrift and ambition leading them to commercial pursuits and trades. The places thus vacated have heretofore been filled by newcomers.

Another effect of the war has been to cause thousands of foreign men to leave their work in American industrial concerns and return to their native countries to engage in military service. With the large number of fatalities and the destruction of capital, those in touch with the situation here believe that the European governments will make strong efforts to keep their subjects at home after the close of the war, thus curtailing the supply of labor available to carry on our economic development and commercial expansion.

Contemporary Opinion

Courtesy.

(From the Southern Pacific Bulletin.)

A SUCCESSFUL merchant was discussing with a friend the other day the means by which he had upbuilt his business to its present magnitude.

"The credit is due to the men in our organization," he said. "They have learned the importance of being in earnest. They take their work seriously By that I do not mean that they walk about looking worried and afraid to smile. But they use common sense. They think. This, coupled with courtesy, not only holds our present trade, but attracts new business and holds it. For instance, when a man enters our store he may do so merely to suit his convenience. The place may be closer than any other; our goods may be of a required standard. Nevertheless, by coming in and buying from us, he is doing us a favor. And we let him know it. We do this, not by gushing over him but by treating him courteously, by thanking him for his patronage, by letting him know we appreciate his trade. In nine cases out of ten he leaves with a pleasant memory of the store and returns, even though he has to walk out of his way to visit us."

The merchant's remarks may well be applied to the railroad business; probably more so than any other. The railroad of to-day is America's greatest commercial institution. It pays more taxes, supports more people—stockholders and employes—and contributes more to the general welfare of the nation than any other enterprise. Yet, on account of the vastness of the average railroad organization, we are apt to overlook, at times, the fact that we are essentially a business institution, dependent for success upon the patronage of the public and the loyalty of ourselves.

That is where the importance of being in earnest comes in. We must realize the value of the patronage of the public and the loyalty of each other.

In dealing with traffic, whether it be passenger or freight, it is essential that we bear in mind the standards maintained in other commercial fields. A man buys a ticket from us or ships a carload of freight via one of our lines. He is just as much a customer as is the man who patronizes this or that store. He may choose our line because it is convenient. All the better; we have another talking point to dispose of what we have to sell—transportation. He may select our line because he has been given good service before or because he has heard of our service. All well and good; but the big, the important thing to remember, is that we are employed to see that he gets such service as will make him a steady customer. Failing in that, we are remiss in a duty we owe the company and ourselves. When we lose a customer, traveler or shipper, we shorten the company's revenue just so much. When the company's revenue is shortened there is just so much less available for added employment, for supplies or for any of those railroad expenditures which play so prominent a part in the upbuilding and maintenance of railroad territories.

A pleasant word, a cheerful countenance, a courteous response to a query that, for the moment may seem foolish—but to the perplexed shipper or passenger is far from foolish—will do more to retain the patronage we now receive and will do more to obtain new business than anything else. The most proficient traffic solicitor may lose business to a competitor because of a single and thoughtless act of discourtesy on the part of a clerk or a trainman.

We should remember at all times that the public pays us for serivce and expects the best. If every one of us will constitute himself an individual unit making for the best of service, we can continue to give it. The issue is not up to one man or to one department. It is up to each member of the Southern Pacific family. Like the men in the merchant's store, the credit for what is done belongs to the men in the organization.

The Value of Courtesy as Reflected in Dollars and Cents.

(From The Popular Magazine.)

THE value of courtesy cannot be stated exactly in dollars and cents. Literally it is inestimable. But the cost of discourtesy and inattention has been appraised and assessed from time to time in courts of law in the form of judgment for damage. Because the railroads, through their employes, come in contact with about a billion passengers a year, the bills they have to pay on this account are considerable in the aggregate, but owing to their vigorous campaigns for courtesy they are gradually growing less.

It costs something to stop a train, when it is once under way, and back it to the station it has just left. But, everything considered, it costs far less than five thousand dollars. That is what one railroad had to pay recently for not doing so. A woman riding in a parlor car was carried past her station. The train was hardly started again when she chanced to hear the name of the station mentioned. The conductor happened to be going through the car at the time, and the woman asked him to stop the train and let her off. He refused, the woman was carried to the next station, and arrived at her destination three hours late. She sued for the loss of time and the mental agony she had suffered. Her claim that the railroad had not paid proper attention to her was sustained.

In a large Eastern city a cabman had his vehicle at the curb near one of the entrances to the station. One of the railroad's employes told him to move on, and incidentally swore once. The cabman was not a passenger. He was on railroad property. Yet the "big D" the station man used cost the company one thousand dollars.

A passenger on a train out of New York was told by the conductor that he was going beyond the station his ticket had called for, and that fifteen cents more was due. In the course of the ensuing dispute the conductor called the passenger "a ——— fool." The fifteen cents was paid under protest, suit was brought, and the railroad made a hard fight, but the jury saw things from the passenger's point of view to the extent of a twenty-five-hundred-dollar verdict for the conductor's discourtesy.

In a small town in the Middle West, one winter day, a passenger who was obliged to wait an hour in the station for a delayed train complained that the place was cold. The station agent disagreed. They had some heated words, and later the passenger sued the railroad for damages—not altogether for the station agent's remarks, but also for the discomfort he had suffered from the cold. He did not allege any ill consequences, but he recovered seven hundred and fifty dollars enough to buy quite a lot of coal.

The Government Owned Railways in Italy.

(From Concerning Municipal Ownership.)

ACCORDING to the Government's report for the year ending 1912, the latest report available, the total revenue from the operation of the Italian State railways amounted to $116,568,348. The total operating expenses amounted to $97,871,890, leaving a balance of $18,696,458. The last sum has been set down as "net profit." Is it rightly so called?

In the first place, the 8,387 miles of State railways in Italy have cost the Government $1,334,928. Their capitalization approximates $158,185 per mile. In 1909 the capital cost amounted to $126,886. Between 1909 and 1913, therefore, this item increased $21,000 a mile. Professor Hugo R. Meyer, who has made an extensive investigation of the Italian railways, states that the heavy capitalization and the excessive cost of operation are largely due to political influence.

Furthermore, when Italy took over the railways in 1905, a loan was negotiated at the rate of four per cent. As a matter of fact, however, the bonds sold at less than par, therefore the annual interest charge became nearly if not quite four and a half per cent. But even at the original figure the interest charge must have amounted to $53,397,124 a year. Lost taxes should be figured at not less than $10,000,000 a year. Thus for the year 1912, a direct loss is shown of $44,700,666.

Now for indirect losses! The freight rates of Italy are more than twice as high as those of the United States. In 1912 Italian shippers paid $63,721,393 for the transportation of freight, although the wage scale of Italy averages less than half that of this country. The average wage of the Italian railway worker is $354 a year.

American Railway Service.

THAT the service rendered by American railroads is the best and cheapest in the world has been often asserted by competent judges, although advocates of government ownership have argued to the contrary. The statement of E. E. Clark, member of the Interstate Commerce Commission, fortified as it is by varied satistical data, should be convincing. He shows that the ton-mile revenue in the United States is much smaller than that in Great Britain, Germany, France, Austria, Norway, Belgium, Switzerland, New South Wales or South Australia. It is over three times as much in Great Britain and nearly twice as much in Germany. The railroads of the United States move 2,737 tons of freight one mile per capita per annum, while Germany, leading all Europe, moves but 582. The American rule is a large volume of traffic with low rates, which is advantageous to the public.

Mr. Clark might have added that American railways spend more for wages and salaries, even though their capitalization is lower than that of the European lines. American railways cannot make uniforms and brass buttons go as far as the governments of Europe can. There are some points of superiority in European lines. They excel in track construction, permanency of stations, and in safety appliances and signals. We have frequently deplored the number of grade crossings in the United States and the failure of the peace authorities to enforce laws against trespass, whose violation is responsible for the unusual death toll. We should do everything to make travel safe and comfortable to passengers and trainmen, but it cannot be done unless the railways are allowed to make adequate charges for service.

Bankrupt Railways.

THE total mileage of railway lines now in the hands of receivers is 41,988, or a little more than one sixth of the total mileage of the country. The capitalization of these lines is $2,264,000,000. Whether this capitalization is excessive must be a matter of opinion. Dividing the mileage into the capitalization, the result shows that $54,000 a mile, approximately, would have had to be spent in building and equipping these lines if the present total capitalization is not excessive. On some of them, such as the Katy, the Frisco and the Rock Island, there are vast stretches along which gradients were easy and bridge construction light. On some of the other, and shorter lines, the difficulties were greater. The average of $54,000 of capitalization per mile must be regarded as being not low.

In ordinary or normal times, this would have to be considered as a more practical question than it is just at present. Even had overcapitalization been avoided by all lines, it would still remain doubtful whether railroading could be made profitable under existing conditions. Freight tonnage, which began declining from a high record almost immediately following the operation of the Underwood tariff law has continued stationary or showing, in later months, only such small gains as to be almost inappreciable. This was also the condition of things in 1894, the only year which, according to Interstate Commerce Commission records, has approached this in the number of railway receiverships. In that year, 40,818 miles of line were thrown into the hands of receivers, accompanying, as now, a prostration of domestic industry coincident with a low tariff law.

In that year, however, the railroads had nothing more than industrial prostration under free trade to contend with. Rates, both freight and passenger, were higher than now, while the price of labor, in nearly all the many lines employed in railroad work, was less. Railway lines now, as the Globe-Democrat has more than once pointed out, are not only beset with industrial prostration growing out of tariff tinkering, but their expenditures in wages have been made higher and their revenues from such reduced traffic as they can handle are still further reduced through lower rates. In freight the tonnage is less as is also the price of hauling it. In passengers, travel is less than the rates, in many sections, lower. And the problem is not one for the railways alone. When such a vast and ramifying industry is struck, there is no business interest which does not feel the blow.

Feed the Cow, Don't Club Her.

(From The Philadelpha Ledger.)

RAILROAD taxes increase with remarkable swiftness. In ten years taxes paid by all the companies of the land jumped 137 per cent, while gross earnings advanced but 46 per cent, and net revenue rose by only 22 per cent. Of all taxpayers, the anthracite carriers, which derive their tonnage from Pennsylvania, lead the list with an increase of 208 per cent in one decade. These figures show that the public is demanding more and more from the railroads for the support of government, local, State and National, because they contribute to all three.

Probably no one but the railroads themselves will contend that they now pay too much tax, but the general policy of dipping deeper into their treasuries each year makes all the plainer a blunder of the Interstate Commerce Commission. When the roads were virtually ordered by it to make each department self-supporting, up went the passenger fares to help defray the ever-rising costs of transportation. It is obvious to any tyro that high passenger fares bring hardships to ten persons for every twinge felt in anybody's pocket by a moderate advance in freight rates. Clubbing a cow with one hand while trying to milk her with the other is an unprofitable game. If railroad taxes are to multiply six times as fast as profits, more feeding and less clubbing of the cow will be advantageous all around.

Valuation in Rate Making.

(From Wall Street Journal.)

W. M. ACWORTH, a recognized English authority on transportation problems, writes on the valuation of American railroads now being made by the Interstate Commerce Commission in part as follows:

"When the valuation is complete—if it ever is and if it is not then hopelessly out of date—it will be useful, we are told, not only for purposes of taxation, but also as a valuable guide to the public authority in fixing reasonable rates. * * * There are a dozen routes from Chicago to New York; and the physical valuation of the different routes varies enormously. Yet there can only be one rate for the same traffic between the two points. How are valuation and rate to be brought into relation with one another?"

The Wall Street Journal believes that the only useful purpose which valuation can serve might be achieved less expensively and quite as rapidly through the progressive systematization of railroad accounting. Every year that part of the capital accounts of the railroads of which the Commission complains it cannot trust for accuracy becomes proportionately smaller and smaller. Yet in fairness the real attitude of the Commission toward valuation must be recognized.

At no time has the Commission entertained the idea that the results of valuation would reduce all railroads to a fixed and uniform rate of return upon the investment, or that they would be of any great assistance in determining single specific rates. It is becoming obvious that the crux of the rate problem in this country is not the adjustment of specific rates, but the relation between the general rate level and the average return upon the bulk of railroad capital.

In every case involving a large number of rates extending over a considerable territory, the carriers now rest their case chiefly upon the contention that the net revenues are insufficient to yield to capital such a return as will assure the stability of railroad investment, and the provision by investors of the amount of new capital required by the public service. In doing so they necessarily employ the "cost of property" as shown upon their books. Railroad managers themselves admit that these figures, handed down in part from a dim and disordered past, are of uncertain accounting values, though they loyally insist that the "fair value of the property," whatever the phrase may mean, is unquestionably in excess of the book value of all but a very few of the railroads.

It is just to test the truth of this assertion that the Commission has for the past twenty years advocated a physical inventory, supplemented by full consideration of the non-physical elements of value that may exist. Whether the accounts of the railroads as a whole are or are not "watered" remains a matter of opinion among those who spend their minds upon it; and no amount of confident assertion on either side will ever make it anything else. The question calls for a treatment of even Teutonic thoroughness.

And in view of the fact that the accounting of all but the insignificant railroads is, and has been since 1907, under minute supervision by State and Federal authorities, the valuation cannot be out of date upon its completion, no matter how long in the making. If some sort of a reasonably approximate valuation as of June 30, 1914, can be reached in 1920, it will be fit for the qualified use the Commission intends it for when the investment of the intervening years have been added. Of these the railroads are keeping a highly trustworthy record.

If the general rate level cannot be brought into relation to valuation, then every application the railroads have made for a general rate increase since the Commission was given control of rates has rested upon a foundation of shifting sand.

A Costly and Useless Inquiry.

(From The New York Journal of Commerce.)

IN response to the request of a conference committee of railroad presidents, the Interstate Commerce Commission has begun a hearing, in which State railroad and public service commissions participate, on the regulations to be adopted for the valuation of "physical properties" of the railroads of the United States under the act of Congress of March 1, 1913. It has been brought out that this process is already costing $2,700,000 a year and it is not expected to be completed before 1921. The chances are that the expense will increase as the work goes on and there is no assurance that it will be completed in six years more. The cost will be heavy for the railroads as well as the Government. Neither can afford the expense and neither is likely to derive any benefit whatever from the result, which the industry and trade of the country will have to pay for. The law requires both the cost of construction and equipment in the past and the cost of "reproduction new" to be ascertained. "Unit prices" are to be determined and the amount of depreciation and appreciation in values, including that of land taken, and a separate statement of the cost charged to expenses or surplus as distinct from that met from invested capital.

It seems to be assumed that if all this information could be gathered with approximate accuracy, it would in some way serve as a basis for determining a proper capitalization of different railroads and the rates properly to be charged for their service. It would be speedily found that it could practically serve no such purpose. Existing railroads are already capitalized, and the securities representing the capital are widely distributed and constantly changing hands. They also continually change in market value according to earnings, which depend, not upon the amount of capital invested in the properties, but upon conditions of traffic, which shift and fluctuate and which no management can control. The utmost it can do is to attract or repel traffic within narrow limits by economy, skill and efficiency, or lack of them, and by adopting rates according to circumstances and conditions or failing to do so. The general volume of traffic, and in the main its distribution, are beyond human control, and too rigid regulation or restraint is the opposite of beneficial.

The proper capitalization of railroads differs on different lines and in different sections of the country, as the cost of construction differs and the prospects of developing traffic vary. In undeveloped or growing sections it often has to be in excess of the actual cost or physical value of land, structures and equipment, the return depending upon future development which cannot be counted upon with certainty. To obtain necessary capital, securities not based upon mortgage have to be distributed below par, sometimes freely in stock as an inducement to take bonds, in order to carry an enterprise through. There are in all cases considerations apart from the actual value of the "physical property." The real value of that property will depend upon the use made of it, whether profitable or unprofitable.

So with the rates to be charged for service in carrying on railroads. They cannot be determined by the past cost, the cost to reproduce, or any fixed valuation of physical properties. It is utterly impracticable.

The Burden of Regulation

By J. M. DAVIS, GENERAL MANAGER OF THE BALTIMORE AND OHIO SOUTHWESTERN RAILWAY.

NOTE.—The following paragraphs taken from a public statement recently made by Mr. Davis show in a striking manner, how regulative laws often conflict and how almost impossible it is for the carriers to harmonize their business with the requirements of the various state laws and commissions. Mr. Davis points out that as a general superintendent in charge of a grand division, he spent last year 101 days conferring with members of railroad commissions, other officials and court officers and had but 209 days in which to transact the business of the railroad.

"EVERY railroad officer who looks at the matter of public relations in a broad-minded way," agrees that regulation has been beneficial up to a certain point. The law prohibiting rebates which undermined commercial concerns, the law to protect railroad employees by means of safety appliances, the anti-pass law and numerous others have helped us serve the people better and enabled the public and the carriers to understand the rights of each other. So I say that, considered from this viewpoint, the railroad officials do not and would not return to the methods of the old days.

"But while the laws which I have mentioned have been placed on the statute books, the way has been smooth for the demagogues and the unscrupulous, who have taken advantage of their opportunities to harass the railroads with laws which not only were unjust, but which saddled large expenses upon them without benefit to the public or the service.

"In an address before the American Bar Association Senator Elihu Root, of New York, decried the indiscriminate passing of laws and stated that this country makes too many laws. The speaker said that 62,000 statutes had been passed in five years and a big percentage of these affected the railroads.

"These new laws are being written on the statute books so rapidly that an attorney is often unable to give counsel promptly because of being unable to keep up with the pace of the Legislatures.

"Of the more important laws pertaining to the railroads which we have with us always are the hours of service law, employers' liability, ash-pan laws, caboose, full crew and semi-monthly payroll statutes, two-cent rate, electric headlight, automatic block signal, train limit and automatic fire-door laws. One Legislature had up for consideration last year a bill to compel the railroads to provide air-tight and dust-proof locomotive cabs—about as practicable as the bill introduced in Colorado to compel bulls when traveling alone at night on the public highways to wear lanterns and the bill in Kansas to revise the Ten Commandments. I have in mind conflicting laws of states which the railroads are required to comply with. One of these states requires a cuspidor between every two seats in passenger coaches, while the adjoining state through which the trains travel on the same run requires that the cuspidors be removed.

"The safety appliance law has been a great help to the railroads, but with the changes which have been made and the modifications which have taken place and continue it is difficult to carry out the provisions. At a recent staff meeting the question was asked whether any one present could name the parts of a car subject to defect, and it could not be done, because there are 257 defective possibilities on a passenger or freight car and 30 on a locomotive.

"We have considered some of the phases of the difficulties which beset the railroads as a result of legislation. Let us see it from another angle. It is well known that the human lives sacrificed each year in this country by trespassers losing their lives on the railroads is appalling, in the face of all the companies have done to discourage it, and the urgent appeals which they make to the public.

"Warnings have been issued, appeals have been made through campaigns of education reaching to the primary schools and the pulpits, railroad laborers have been pressed into service in such campaign to the extent of cautioning people to stay off the tracks of the Baltimore and Ohio and all companies, yet the number of fatalities is increasing.

"Very little co-operation has ever been extended to the railroads by the authorities in the anti-trespassing campaign, and the cost in dollars and cents is most serious, if we leave out of the question the cause of humanity. Yet if, as a last resort, habitual trespassers are arrested by the authorities or railroad patrolmen they are liberated, and often told to get out out of town within a limited number of hours, which is an indirect way of telling them to get back on the railroad property. Public criticisms are heard in such cases, and it is sometimes charged that the railroads conspire to make the arrests.

"Realizing that laws frequently get on the statute books because of a lack of knowledge on the part of those who introduce them, the Baltimore and Ohio has made a special effort to keep in close touch with the public and furnish them information of every character concerning its public affairs. This is extended to the general public, and personal interviews often result from letters received in good faith from some one who has a complaint, real or fancied, and it is felt that more satisfaction can be had by a fair discussion between a railroad official and a patron than if the matter were pursued by correspondence. It is our policy to transact our business with the commissions and other authorities by personal conference rather than correspondence. The management wants to be regarded as a good neighbor in every community, a law-abiding citizen that has at heart the interest of its localities."

The Railroad a Public Servant

By W. E. Williams, General Manager, Missouri, Kansas and Texas Railway Company.

Note: The following paragraphs are taken from an address by Mr. Williams at the convention of the Superintendents' Association, recently held at San Francisco.

THE railroad is not the creation of a patriot or philanthropist, but is the result of a well schemed, hard headed plan of plain practical men to make money by providing a convenient, comfortable and rapid method of transportation to displace the slow, cumbersome ox team and stage coach, as well as the distressingly lazy and time-killing canal and steam boat.

The construction and operation of a railroad was and is permitted only by Governmental sanction, and in the early days they were projected between two or more then populous towns that were willing to assist in the expense of construction and offered opportunity for a return from the operation and investment. Concessions and bonus without limit or number were tendered such enterprising citizens as would promote a railroad, and when started they would be invited and encouraged by alluring offers to extend to this place and that, until finally there was a vast number of short independent lines in the United States that started nowhere and did not go. These railroads, crude and inefficient as they were, immediately displaced other methods of conveyance, and became the recognized and established system of transportation between the points served. They were so greatly appreciated, that they were really overwhelmed with appreciation and importance—states, cities and towns sought them with all offers of encouragement in the way of monetary assistance, exemption from taxation and in the grant of exclusive privileges. These lines, with very few exceptions, were constructed by private capital and operated as a private enterprise, although in every case intended as a common carrier and dependent absolutely on the pleasure of the people for creation, as well as existence. They were authorized by and for the benefit of the public, but the need of such facilities was so great, the public turned them loose as it were and permitted them to run wild and without restraint, and to handle their business as best suited their own interest and the ideas of their directorate or operating officials.

Such freedom of responsibility could have but one result, and the unbridled operation of the railroads resulted in practices not alone prejudicial to the people, but actually harmful to the best interests of the railroads, their owners and operators. This condition resulted in an inflated and exaggerated idea of the importance of the railroad, as well as the railroad men, and the impulsive and spectacular public weaved around them a charm of mysticism, grandeur and almost omnipotence. They made of them a something unreal in its greatness, power and benefits, and to the hard-headed, practical railroad man they attributed power and influence far above the average mortal; they made of him a demigod, and what was worst of all, made him believe it, and then unfortunately for him, the public woke up but the railroad man did not. He continued in his assumed state of superiority and haughty grandeur to that elevation from which a bold defiance was hurled forth and the public was "bedamned." This was the end, because the public would neither be damned or downed, but on the contrary took hold of our man of iron and found him, instead a man of clay, a common, ordinary human being without permanent halo or powers beyond that of simple manhood.

No man ever served a mistress more capricious, exacting or unappreciative than the public, and when this thing of power was brought to a place where it could be viewed with an unblinking, naked eye, the turn of the public had arrived, and they proceeded to take hold of the railroad and the railroad man, and unhappily not always with moderation or justice. The day of the old operator was done, the reign of the Czar was over; immediate adjustments were to be made, new men and methods installed, and it was left to the railroad man of to-day to reap the harvest of discrimination, oppression and favoritism that was sown by our early predecessors. There was no half way or halting ground in the march of reforms, as all moves looking to adjustment of bad conditions or practices are like the pendulum of a clock swinging from one side, and from one extreme to the other, and time has shown that the public can be and has been as unjust and as unappreciative of the railroads as the railroads formerly were of the public.

To what extent and for what length of time the prejudice of the public towards the railroads will continue, is a matter of uncertainty, but to my mind it will continue until the public is convinced that the railroads are honest and sincere in their efforts to perform the functions for which they were created, to serve without fear or favor the interests for which they were intended and demonstrate their importance and necessity in the general scheme of private and commercial life; in other words, this condition of repression and prejudice towards the railroads will continue until the public can be convinced that it is to their interest to assist in the development of the railroad to a proper state of perfection. We must demonstrate the fact that the railroad and its employes would be servants and not masters of the public, and acknowledge that we are here by the pleasure of the public; and since our existence and well-being depends on our ability to serve, let us be good servants and serve alike the interests of the public and the owners of the property we represent, bearing in mind that our value to the owners is in proportion to the extent of our satisfactory service to the public. It is useless to claim that we have in the past acted fairly towards the public at all times, or to contend against a condition we cannot control, and we must recognize the fact that railroad regulation was brought about by the flagrant injustice of the railroads of the past and is here to stay, and that never again will railroads operate or be permitted to run as they were in the past. My experience and observation in a lifetime of railroad service, has convinced me that regulation is both necessary and proper, and it should be our aim to induce the public to couple with this regulation an assumption of equal responsibility. We should endeavor to have them realize that we are sincere in our efforts to conform to the laws of the county, the regulations of properly constituted bodies and persuade them that in doing so we need and should have the protection due to a public servant. We should have proper and sufficient remuneration for the service we perform; adequate rates should be allowed to provide the funds necessary for the installation of needed improvements and facilities. Authority to reissue reasonable regulations looking to the care, comfort and safety of persons, and safe, efficient handling of property should be conceded to the railroad operators, and receive the sanction of governmental approval. Responsibility for the carrying out of laws and regulations should attach to the employe at fault for failure to comply therewith For instance, the law requires the posting of bulletin boards, the heating of waiting rooms, and the courteous treatment of the public. The rules of the railroads demand this, and the offending employe rather than the railroads should be penalized where this is not done. Railroad property should be protected against trespassers, and regulations formulated for the convenience, comfort and safety of the many should not be permitted to be set aside for individual accommodation or convenience. To accomplish this it will be necessary for the railroad man to entirely change his line of action and mode of life and instead of holding himself aloof as something superior and apart from the common run of humanity he must take his place as one of the units in the general scheme of life, be a citizen, a part of the body politic, demonstrate an interest in public affairs and become a factor in the development and upbuilding of his community and country and thereby gain an influence in the movement for the general good that will give him prestige and standing in the securement of fair treatment for the interests he serves.

At the opening of this address I stated the superintendent was the real man behind the gun, and that statement I wish to repeat. He should have a due appreciation of the importance and responsibility of his position, yet his impression should not be such as to give him the "big-head," but rather to bring to him the realization of the immense value of his influence for good and the great opportunity to be of real service to the public and his employer. The board of directors, president and executive officers may issue all the rules and regulations that can be devised, but unless they receive the active, intelligent and interested enforcement of the superintendent, they are valueless. The traffic department may secure business for the line, but it will be impossible to hold it without the co-operation and assistance of the superintendent. The reason for this is very simple. In the carrying out of instructions or the handling of the business of a railroad, hundreds and thousands of men are worked into the general scheme of efficiency, and all of these men, or that is, such portion as come in direct contact with the public in the handling of persons and property, are employed in the first instance and come directly under the supervision of the superintendent. If you have not shown proper judgment in the selection of men for the various positions, and if you have not educated them to an enforcement of the rules and regulations for the handling of the company's business, all instructions issued by higher authority tending to proper regulation, and all efforts of the traffic department to secure business, amounts to nothing; on the other hand, if you as a superintendent have displayed the proper discrimination and judgment in the selection of your subordinates and have placed in positions the right kind of men to deal with the public in handling the company's business, your troubles are insignificant, and the regulations of which we so frequently complain are found by no means burdensome. Let us remember that we are in the business of selling transportation and hiring our facilities for the movement of persons and property; that the public is our customer, and it is simply good business to treat your customer fair and square; take good care of him so that he will come back to you when again in the market in your line. A satisfied customer is a good advertisement in any line of business, but in the railroad business he is an absolute necessity.

I do not object to governmental supervision or reasonable control, because this will clarify the view of the public with respect to railroad operations and will protect its revenue against unjust extortions, rebates and other abuses, it will produce an improved and dependable service, and will insure to the public the enjoyment of comforts, convenience and service the railroads have unwisely withheld in the past. The Government should require of the railroads the use of the most approved methods and the highest character of service, and they should be willing to pay for it; and I believe they will when it is known that the railroads are honestly operated but are not receiving enough revenue to meet the demands of the public. It takes money to maintain and operate a first class railroad; the public should be satisfied with nothing less but pay tolls on that basis.

The investor of to-day who places his money in railroad securities does so with the full knowledge that he, to a large extent, surrenders control of his investment and must submit to reasonable and proper regulations, and it is my idea that any man who is not willing to surrender certain individual rights and privileges, has no place in the public service. The transportation facilities of to-day are too vitally essential and too closely allied and interwoven in the general scheme of private and commercial life to suffer interruption; therefore, it should not be within the power of any one, either management or man, to do that which would obstruct or interrupt the steady flow of commerce, and it is my belief that the governing bodies should protect their railroad operation by taking away from all men connected therewith the right to leave its service at pleasure or when to do so would interfere with or restrict the ability of the railroad to perform its function as a public servant.

The Story of Railway Mail Pay

Note: The following paragraphs have been recently published in a bulletin prepared by the American Railway Association and constitute answers to some leading questions as to the past and present status of the relations between the Post Office Department and the railways.

SUPPOSE a business man signs three letters, one to Mr. Smith, of Smithville, one to Mr. Brown, of Brownsboro, and one to Mr. Lewis, of St. Louis—all in the same general direction. These three letters are dropped in a post office box from which the Government letter carrier takes them to the nearest branch post office. All three letters in the sorting process are thrown with mail for the South, put into a blue and white striped sack called a pouch and lugged in a post office wagon to the railway passenger station. As it is inconvenient for the wagon to back up to a mail car, the bags are unloaded on trucks on which employes of the railroad haul it to the cars in the train. This is a busy route. There are so many bags that the mail clerks on the train would not have room for sorting if they took all the bags into their post office car, so the overflow is put in a special mail storage car which itself will not hold quite all, and the odd bags are put in the baggage car. The mail clerks now tie up each letter in a special bundle, the bundle containing Mr. Smith's letter going into the Smithville bag, the one containing Mr. Brown's letter into a bag labeled Whitesburg Junction on the way to Brownsboro, and Mr. Lewis's letter on a table in front of a rack

The least labor performed by railway employes in connection with any of these letters is with Mr. Lewis's letter. A mail clerk from St. Louis boards the train some hours this side of that city and throws the St. Louis letters from the table into the pigeon holes, each representing a carrier's route, so that when Mr. Lewis's letter reaches St. Louis ready tied-up in a bundle for the individual carrier, it is locked in a bag, put into the post office wagon by railroad employes, carried to the branch post office and delivered by a postal employe to Mr. Lewis.

The train does not stop at Smithville. Mr. Smith's letter in its bag is thrown from the moving train into a long receptacle beside the track known as the receiver. At the same moment a letter from Mr. Smith crossing the one which is on its way to him is in a bag suspended from a crane rigged upon a gallows at the side of the track and as the train passes, a crane projecting from the side of the car grabs it. An employe of the railroad takes from the receiver on the platform the bag containing Mr. Smith's letter and carries it to the post office, which is not more than a quarter of a mile from the railroad station. There the employes of the Government once more take the letter and deliver it to Mr. Smith.

Mr. Brown's bag has to change cars; in fact, it has to change railroads. It is thrown from the car at Whitesburg, a junction point, on to a truck and conveyed by railroad employes to the passenger station of the other railway, not more than a quarter of a mile distant. Employes of this second railroad truck the bag to a room maintained for post office purposes in a part of the station designated by the Post Office Department. Here mail clerks assort all the letters in that particular bag and transfer Mr. Brown's letter to the special bag for Junction City, another place on the way to Brownsboro. Railroad employes truck this new bag to the mail car on the train. At Junction City the railroad employes carry the bag to the passenger station of a third railway, where there is no mail room but where the requisition of the postal authorities the railroad has provided in advance of departure a combination car containing an apartment for postal purposes and another apartment for baggage. In the mail apartment of this car as it waits on the side track the mail in the bag which contains Mr. Brown's letter is once more sorted and Mr. Brown's letter deposited in the bag for Brownsboro, where he lives. This special car and Mr. Brown's letter will not go by the same train. Mr Brown's letter is to go by a branch line which does not carry mail cars. When the branch train comes along employes of the railroad throw the bag into the baggage car, from which at Brownsboro the railroad employes lay it on the platform whence railway employes carry it to the post office, not more than a quarter of a mile away. The postal employes then deliver Mr. Brown his letter.

What Services Do the Railways Perform, What Equipment Do They Furnish of Which No Cognizance Is Taken in Fixing Compensation?

1. **Mail apartments in combination cars.** These mail apartments make up about 32 per cent of all car space used for mails.
2. **Side messenger service within a quarter of a mile** terminal messenger service transfers from one railroad to another at junctions if stations are a quarter of a mile or less apart.
3. **Station rooms for transfer clerks and station rooms for storing mails.** The Post Office Department exercises the power to determine the size and location of these rooms. They are paid for under some circumstances, but usually not.
4. **"Railway post office cars" and apartments placed in railroad terminals before departure of the train, sometimes hours before, or held after the arrival of the train.** This service relieves the Post Office Department from paying rental elsewhere or from paying for the maximum requirements en route.
5. **Mail cranes, mail receivers and mechanical catchers.**
6. **Transportation of railway postal clerks on duty** and to and from duty **and of postal officers,** not only those connected with the railway mail service but those connected with other branches of the postal service.
7. **Speed.** Pay is no greater for 60 miles an hour than for 15 miles an hour.
8. **Frequency.** Pay is no greater for 100 trips a day than for one trip, though the aggregate weight of mail be the same in both cases; whereas if a single train fails to make its usual trip a deduction is made from the pay.

How is the Amount of Service to Be Paid for Determined?

By two methods—weight and space.

1. **Weight.** The country is divided into four zones. Mail carried in each zone is weighed quadrennially, so that weight is taken in one zone each year. Weighings take place every day for a period of not less than 90 days, which the postmaster general is expected to designate as representative of the year. Payment for the four years following the weighing is based upon the average daily weight thus estimated. About 90 per cent of the pay is computed on the basis of weight.
2. **Space.** The postmaster general authorizes such "railway post office cars" as he estimates will be needed and the remaining 10 per cent of the total pay is for space so authorized. The postmaster general also authorizes apartments in combination cars, but no specific payment is made for the use of such apartments.

How Are the Rates of Mail Pay Fixed?

By the postmaster general, limited by maxima fixed in the statute.

1. **Weight.** The law in effect prior to 1876 prescribed that the pay per mile per annum should "not exceed" certain specified sums, the rate per 100 pounds of average weight carried decreasing with the increase in volume of traffic carried over any route. A reduction of 10 per cent from that schedule was made effective in 1876, a further reduction of five per cent in 1878, and in 1907 a third reduction of five per cent on weight in excess of a certain average amount carried on any route.

The postmaster general was authorized in 1913 to add not exceeding five per cent to the compensation on routes not yet reweighed since the parcel post was established. It happened that the contract section lying within the area from New York to Buffalo, to Pittsburgh and to the North Carolina line, the region of heaviest traffic, was weighed in the spring of 1913, when the parcel post had just been established. The traffic in this section does not participate in the five per cent concession, and unless other arrangements are made will have carried by the spring of 1917 the bulk of the parcel post without any pay whatever.

2. Space. Additional pay allowed for every line comprising a daily trip each way of "railway post office cars" is prescribed at a rate "not exceeding" a specified sum per mile per annum for cars of each specified length, but none for cars less than 40 feet long.

These rates of compensation the postmaster general is authorized to adjust, limited only by the words "not exceeding," used in connection with specified statutory schedules. The law provides for no appeal from the findings of the postmaster general either as to weights carried, or as to estimates of car space to be paid for, or as to the rates fixed.

How Does Mail Pay Compare with Railway Earnings on Express and Other Passenger Train Traffic?

A joint committee of the Post Office Department and railroad representatives before the Bourne joint committee of Congress agreed that if empty space hauled on account of the mail service should be charged to that service, then earnings in a test month were for mail 3.37 mills, for express 3.86 mills and for all non-mail passenger train traffic 4.34 mills per car foot mile.

Has Railway Mail Pay Kept Pace with Post Office Receipts?

From 1904 to 1914 post office receipts increased 100.5 per cent and total railway mail pay increased only 27.7 per cent. Two reasons combine to make this discrepancy so large. First, reduction in the rate of payment to the roads occurred in 1907; second, the parcel post has brought the Post Office Department an increase in receipts which cannot be exactly measured because the distinctive parcel post stamp has been abolished, but which, based upon various estimates of the Department, has been between $40,000,000 and $60,000,000 a year, whereas the contract region of heaviest traffic has not had a reweighing since just after the establishment of the parcel post and hence has received very little increased revenue from this new tonnage.

What Do the Post Office Executives Seek to Accomplish by a Readjustment of Mail Pay?

Reduction of Mail Pay.

Former Postmaster General Hitchcock volunteered to Congress in 1911 a report estimating that "through a readjustment of railway mail pay on the basis of cost with six per cent profit a saving to the Government could be made of about nine million dollars." A volume of 306 pages accompanying this report and including letters to the postmaster general from the second assistant postmaster general, in charge of the investigation, contained no statement of the theory upon which cost of service plus six per cent had been arrived at. The statement is nowhere made in the report that cost plus six per cent would be equitable, but this basis was embodied in the Department's first draft of a bill.

Objection was raised to the Department plan on the ground, among others, that it made no provision for giving the roads a reasonable return on the capital employed in the railway mail service.

Postmaster General Hitchcock thereupon agreed to recommend that "in addition to the operating expenses and taxes apportionable to the mail service and six per cent thereof companies may be allowed such additional amounts, if any be necessary, as shall render the whole a proper proportion of a fair and reasonable return on the value of the property necessarily employed in connection with the mail service."

Whatever the effect of this amendment upon the alleged nine million dollars overpay, the Department in a further statement before the Bourne Joint Committee. presented through Second Assistant Postmaster General Stewart, proceeded to attack the bases upon which the railroads had estimated their pay under the new bill. Mr. Stewart rejected the figure for cost of railroad property as reported to the Interstate Commerce Commission. He repudiated the assumption of the railroads that a fair separation of the investment devoted to the mail service could be made by using the percentage of the mail revenues to total operating revenues. He declared "It is not necessary for the railroads of the country to realize six per cent upon the stated valuation of their property in order to pay charges against income payable from operating revenues after meeting operating expenses and taxes." He put forward the contention that rates for mail service should not be governed by the same principles as govern the rates for commercial business (and Postmaster General Burleson personally adopted the same view).

Finally the Department abandoned the basis of cost plus a profit and return on the investment and caused to be introduced in Congress a bill which would bestow almost infinite personal discretion upon the postmaster general as affecting compensation. Under this plan he could shift railway pay up and down by one or all of several processes. "Not exceeding" rates named in the bill he might reduce or increase, first—the car-mile rate for full cars and apartments; second—the initial and terminal car-service rates; third, the pay for side and terminal service (exempting roads or requiring them to perform such services without change of pay); fourth—rates on matter other than first clas (charging express rates when those are low and lower than express rates when those are high); fifth—rates on fourth class (if he could persuade the Interstate Commerce Commission to name rates lower than the mail rates), and sixth—rates on third and fourth class (by requirement as to frequency of service).

The bill provides no appeal to the Interstate Commerce Commission from the postmaster general as to the adequacy of any rates so fixed, no mandatory prescription of a method for checking up amount of service actually rendered.

The only prescribed measure of service rendered is that closed-pouch mails carried in baggage cars (two per cent of the total traffic) are to be weighed annually.

What Do the Railway Companies Seek to Accomplish by a Readjustment of Mail Pay?

Increase of mail pay, by correction of shortcomings of the present process without introducing new elements of uncertainty or arbitrary power bestowed upon Government officials. Roughly speaking the main changes in the existing law which are asked for by the railroads are:

1. **Weighing the mails at least once a year instead of quadrennially and paying the railroads for the annual increase in the tonnage carried.** The roads regard as unfair any method of computing service rendered which ignores weight.
2. **Relieving the railroads from carrying the mails to and from post offices along the lines, or else paying them fairly for this extra service.**
3. **Paying the railroads at just rate for the traveling post offices in more than 4,100 combination cars, which have been equipped with apartments for exclusive use of the Post Office Department.**

Does Anybody Else Beside the Railroad Managers Express the Belief that Their Present Compensation Is too Low?

Yes: The Joint Committee of Congress and the Associate Statistician of the Interstate Commerce Commission, Dr. M. O. Lorenz. Dr. Lorenz's estimate for the Joint Committee was that a 10 per cent increase over present compensation probably would not constitute an over-payment.

The Public Influence of the Railroad Superintendent

By William Sproule, President of the Southern Pacific Co.

Note: The following paragraphs are taken from an address delivered by President Sproule before the American Association of Railroad Superintendents which held its annual convention in San Francisco on August 19th.

If I were asked to point to any branch or phase or activity of the railroad service for the typical railroad man I would without question point to the superintendent. He has to deal with all phases of human nature, either directly or indirectly, either under his personal touch or his official control. He has to deal alike with the mechanism of railroading and with the minds of men. In the great stress of his duties and the personal strain that is upon him during all of his waking hours, he is apt to be so wrapped up in his business that there is obscured to his mind the fact that he is a personage in his walk of life, exercising a wide influence of which he is himself largely unconscious.

Not only does he control the mechanical organism which makes his division a living thing, serving the purposes of the public and of the owners at the same time, but he deals, through his organization, with the traveling public, the shipping public and the thinking public in general. Of the community, the largest percentage, for example, form their opinion of the railroad and its service by the people connected with the railroad with whom they come in contact. I might perhaps say, and you will probably agree with me, that a very large proportion of the public form their opinion from their contact with whom? With the clerk in the ticket office, to whom they come for information; the ticket clerk, when he sells them their tickets; the baggageman who checks their baggage; the trainmen, the conductor, the enginemen in their handling of the train, and last, but not least, the redcap. The handling of the public by these men gives the stamp of approval or disapproval on the part of the public, in large measure, and these men are all under the influence and control of the superintendent.

To-day, more than any other period is a time when men in business have to meet the minds of other men. Never was communication so swift, so broad, and human intercourse so active, as to-day. It has made the minds of men correspondingly active. We are, so to speak, in a condition of mental fermentation all of the time, whether in business or politics, in religion or law. It makes us a nervous sort of people. Now, when we, as railroad men, do business, we have to remember this, not only with respect to the men in the service, but more particularly with respect to the people out of the service, as they are the people to whom we wish to sell the only wares we have to offer, namely, transportation. In doing it we have to meet their minds. They expect of us service, not as a private corporation, not merely as the representatives of private capital, but as the representatives of private capital devoted to public service, and they expect our conduct toward them to be that of public servants.

This is not altogether an undesirable attitude of the public mind. The more we adapt ourselves to it the better railroad men we are, the more useful are we to the public and the more likely are we to get results for the stockholders and the security holders with results satisfactory to the public. It is true that in the transition period which has run along now for a generation, between the time when railroads were regarded as strictly private property, and the present, when they are regarded as private property under public control, we have learned that a continuance indefinitely of the policy of regulation, without recognition of responsibility with it, will not make for the service of the public or meet the public needs. And to you it falls to help us to make that difficulty plain to the public mind. Their minds need to meet ours upon that question. In proportion as the people come to realize that the railroads are endeavoring to give the public good service and are actuated by direct motives with direct methods, in the same proportion will they accord us, I believe, their confidence. The people will come to realize that the railroad business is in precisely the same situation as any other business and as the business of every other concern, namely, there must be such a margin between the income of the railroads and the expenses of the railroads as will make the railroad busines attractive for capital, which is merely the savings of the people, and will make those savings secure when invested in the railroad business.

In the process of bringing that conviction home to the public, I know of no single factor greater than the influence of the superintendent. His attention to the public wants, his desire to meet the wishes of the shippers, to serve the traveling public well, and to make them, upon his road and upon his division, feel at home, is bound to be telling and effective. These influences of the superintendent are bound to extend into every avenue of the service, into every phase of employment within the railroad service, and extending throughout his jurisdiction, they will be felt by a greater number of people than any amount of literature, so-called, circulated through pamphlets and press. This widespreading influence will help greatly to give living effect to things we are trying to impress upon the public, so that the public may see things in our way and we may at the same time look into the public mind, to see wherein we can stand on common ground. In the railroad business this is of great importance, because a railroad, once built, is laid, for the purposes of men to-day, forever. And we to-day are laying the foundations for the future in the public attitude toward the carriers, which finds reflection in governmental attitude toward us. We are laying, above all, foundations of efficient public service, with growing and increasing efficiency of which this nation can well be proud. Let us build so well that private ownership may accomplish all that good government should desire.

I am delighted to say that in my own railroad career I have always found the division superintendent to be co-operative with other departments, always anxious to find out the wise thing to do for the company, always thinking about it, developing his theories and plans, full of initiative, anxious about his men, desirous for them, and besides this so self-sacrificing as to himself, that he constitutes in that fact a tribute to the service. It is for such reasons that upon every railroad, from the office boy to the president, the superintendent commands a place of confidence and of respect; he is accorded a position which in itself speaks in high terms for the class of man that is selected for the place of superintendent, through probably the most strenuous and difficult and exacting business course and competition that prevails in any business or profession in the world.

Gentlemen, in these manifold influences of yours the attention which you give to the shipping and traveling public and to the people generally is of growing importance, and together with the technical and active and human attention you necessarily give to the company, within its own organization, constitute the superintendent a man of increasing force in the service and in the community. He is a man of increasing importance to the company, and that increasing importance will redound to your interest and inevitably be recognized by the companies you serve.

I wish to say a word, in conclusion, of thanks in my own belief to the superintendents with whom I have come in contact, and to that splendid corps of superintendents who constitute the rulers of the divisions of the company with which I am connected.

Snuggling Up to John Smith

Note: The following address was recently delivered before the Ohio Electric Light Association by E. Bert Fenton, publicity manager of W. S. Bartow, Inc. It represents a business philosophy so excellent that it may well be embraced by the railways as well as by other enterprises.

JOHN SMITH is your meal ticket.

You have your list of customers who produce the revenue which keeps the wheels going 'round—but it is plain John Smith, the average citizen of your community, who puts bread and butter, coffee and "ham-and" on your table.

It is John Smith who permits you to exist and enjoy such little luxuries as your territory affords.

John Smith's other name is "Public Sentiment."

If he is "for" you, your way to continued growth and larger prosperity is comparatively easy. If he is "agin" you, there is ambushed trouble ahead of every step you try to take in advance.

John Smith can make you—and will, if you gain and hold his good will.

He can, as easily, break you, if you grow antagonistic or careless in your attitude toward him.

Surely, so important a factor in your business—so vital an element in your future success is worth cultivating.

The public service corporation has both incentives to walk the straight and narrow way. If it earns John Smith's good will, the reward is sure to come; if it earns his ill will, the punishment is just as certain.

After all, the important thing you have to sell is service, and the important thing you have to gain and hold is good will.

These questions are occasionally asked:

What is the visible effect of good will advertising? How is one to know whether it pays or not? How are results to be checked?

There is but one way of checking results. If there is a feeling of dissatisfaction, distrust and unrest among your citizenry—and there is some of this in almost every community—intelligent good will advertising will bring about better feeling, provided it is backed up by performance.

You know this, ordinarily, by the dropping off of complaints, and the friendlier expressions you hear from the man on the street.

Anything that will make the John Smith you serve feel more kindly toward you; anything you can do that will accommodate or please him; anything that will prompt him to say to his neighbor, "Well, that was a decent thing for the company to do"—anything, in short, that will attract the attention of John Smith, interest him, enlighten him about your business, and prompt him to think better of you, is good will advertising.

It is not necessarily printed advertising.

The manner of your cashier toward customers when they pay their bills; the attitude of your complaint department toward those who bring in their grievances; the tone of voice you and your employes assume in answering the telephone; all these little details of the daily routine of business are items of good will or ill will advertising according to the policy you pursue.

As a general thing people are inherently resentful of corporation rules which put them to personal inconvenience. So the greatest care should be taken to make as few such rules as possible and to enforce those that are necessary with the view of reducing irritation to the minimum.

In no place does politeness pay so well as in the office of a public utility.

John Smith doesn't so much resent complying with a rule, as being told in a crass manner that he must.

Come to think, we all feel pretty much the same way. The most of you have doubtless been irritated by placards placed in hotel rooms peremptorily instructing you to turn out the light, or turn off the water, or do or not do some other thing.

I remained over night, recently, in a hotel which forbade the use, under heavy financial penalties, of an electric iron in the room. Now, I don't carry an electric iron and wouldn't know how to use one. But that sign made me "mad" clear through. You have, possibly, felt the same way.

Now, John Smith feels just as resentful when you "rub it in" on him with that word "must," or its irritating equivalent "have to." It is just as easy to pass it along politely and painlessly, and John will not only do what you ask, but like you for showing him how.

Since reference has been made to one type of hotel, it may not be amiss to observe that many valuable hints on the acquisition of good will can be gained from one of the kind conducted on "the public be pleased" principle.

In a city in a neighboring State is a hostelry which is a high type of this idea. No placards with a list of "Don'ts" disfigure its walls. Thoughtfulness of the comfort and convenience of guests is apparent on every hand.

During a recent stay of several days at this house a guest, with whom I have some slight acquaintance, found at hand and ready for use every little convenience he wanted, except a pencil sharpener—and it isn't hard to imagine that this would be provided if someone were to make the suggestion to the propiretor.

That landlord knows the value of good will, and he knows how to get it.

Everybody who leaves his house is a walking advertisement for it.

John Smith is your meal ticket.

Snuggle up to him as you would to a wealthy bachelor uncle.

Get on his "good side" and stay there.

Go out of your way to make him like you.

It will pay in big, round dollars.

It will pay in contentment and peace of mind.

Above all, it will pay because, after you have made him your friend, you will discover that his good will is not only the most profitable, but the most enjoyablt of your assets.

The Freight Terminal

Note.—The following paragraphs are taken from an address delivered by Mr. C. M. Himmelberger, superintendent of the Raritan River Railroad at the September meeting of the New York Railroad Club. As these addressses are copyrighted, their full reproduction is not permitted in the technical press. Mr. Himmelberger's complete paper contained a discussion of other phases of the terminal problem not herewith presented.

IN the consideration of the subject, successful operations depend primarily upon a well-planned track layout and appurtenances thereto. The operating officers may possess every qualification necessary to successfully handle the general proposition, but their efforts will, to a large extent, become vain and perhaps fruitless, if the design of the yard is such as to prevent the free and uninterrupted movement of the traffic. It has been a mooted question among operating officials as to whether a large number of independent terminals in a given locality should be concentrated and operated as a consolidated unit, or whether better results may be obtained by operating the independent terminals as separate units. The solution of this question is very largely dependent upon the amount of ground area that can be secured for the consolidation of the terminals. Unfortunately it is rare that such ground space is available, hence those that favor this practice frequently attempt to concentrate the various independent terminals as a union terminal in a confined area, inducing interferences in movements of traffic, consequent delays to power, etc., that confuse and cripple the entire operation.

In a freight terminal of large proportions, ample ground space, if available, should be utilized for the layout, so that traffic will move in a line of no resistance, with no cross currents of traffic or useless and unnecessary movements. It is appreciated that this is very difficult of accomplishment, but it is the ideal that should be aimed at, and in the approximation, if these interferences cannot be avoided, then the problem of operation becomes a stupendous one and requires rare ingenuity.

The real measure of value to determine the efficiency of yard operations is to provide for the handling of the greatest number of cars per hour or per day. In order that this may be accomplished, a yard engine should not suffer any interference during the course of its day's work. The leads to the yards that it serves should be entirely independent of leads to other yards and the movements from the receiving yard to the point of delivery of cars or to the point where the trains are made up for further movement, should be free and uninterrupted.

It is very essential that the engine terminal should be so centrally located that after a train is received in the yard, the road engine can reach it in the briefest period of time after being cut off from train and without interfering or being interfered with by other yard movements.

Cripple and repair tracks should be so located that they can be reached from any section of the yard with a minimum of car movement.

The inlet to and the outlet from the terminal should be independent and unobstructed so that at all times the train can move without delay, either to the receiving tracks or from the forwarding tracks.

Idle motive power and train crews are very expensive and their idleness is a distinct economic waste. As long as engines are moving in the direction of their final destination, they are earning revenue, but whenever standing idle or when retracing their course, in order to reach their destination, they become expensive and extravagant.

Scales, water columns and other appurtenances should be so located as to be easy of access and require the least movement of power in order to serve their purposes. If an engine is obliged to see-saw through a considerable part of a busy terminal, and over a number of switching leads in order to reach a scale or water column, it not only results in a useless expenditure of power and wages, but it also interferes with the movements of other engines, thus multiplying the waste of money.

Another very important feature of a terminal layout is to provide proper and sufficient electric light throughout the yard. It is very difficult to make such provision in old yards that were designed some years ago, but in the design of a new yard, the consideration of this important element should not be neglected. It is a well-known fact that men can work better in daylight than they can in darkness. Car numbers, seals, side cards, etc., can be better seen when there is a reasonable degree of illumination.

The cardinal principle, therefore, upon which the ideal terminal operation depends, is to so design the various yard sections of the terminal as to introduce the minimum amount of interference between the operations in adjacent sections of the yard. Upon this successful terminal operations depend, in order that cars may be distributed from the general receiving yard to the different piers, float bridges, ware houses, local delivery or truck tracks, freight house sidings, coal piers, etc., or from these points to the forwarding yard with the minimum amount of switching and delay.

It is apparent, therefore, that the proper location of receiving, forwarding and storage tracks is of vast importance. In the designing of a terminal yard track layout, the advice of those who are closest to the practical operations, usually the terminal Train Master in conjunction with General Yard Master, is of paramount importance. They have the most thorough knowledge of the specific and detailed requirements of their territory, and the simplest method of distribution. They can advise how the gateway into and out of the yard can be reached from the various sections with the quickest despatch.

Another important feature is the proper provision of power. It is a fallacy to suppose that any old piece of machinery that was once called a locomotive will answer as a drill engine. In these days of efficiency in operation, the best results can only be obtained from the employment of power sufficiently heavy and in first-class condition to meet the requirements. Each yard is in itself a separate problem. No two terminal yard layouts are ever designed exactly alike. It is not necessary to dwell upon this feature as it is obvious that local conditions, extent of available ground space, etc., determine in a large measure the character of the layout. The conditions that such layouts create must be met and solved according to the necessities of the case.

To successfully handle a freight terminal, and accomplish what is required in the line of a simple, economical operation, demands an efficient and smooth working organization, controlled by practical men, preferably those who have worked up through the ranks, and who have displayed ability to handle and develop the latent qualities of subordinates; men who are broad minded, fair in their dealings with the public and employees, and who possess the necessary tact to fully protect the interests of the company without antagonizing shippers or consignees who are not familiar with the complex nature of the handling of traffic through a busy terminal.

The details of operation of a freight terminal are centered in the General Yard Master and his assistants, assisted largely by the Freight Agent, and forces under his jurisdiction.

In the selection of Assistant Yard Masters, which are necessary in the operation of a large terminal, it should be borne in mind that they must be men not inferior in any particular to the General Yard Master. They must possess the same degree of intelligence, the same reasonable amount of education, the same initiative and aggressiveness and the same tact that the General Yard Master possesses. They must be practical, in fact, they should be selected because of their possession of these attributes.

It is difficult to say from what class of service these men should be selected. Their choice depends upon the judgment of the General Yard Master. They may have been conductors, or car checkers, in some cases agents or towermen have have been selected, who exhibited the proper qualifications, including a practical turn of mind. These elements in their makeup soon manifest themselves in the development of first-class men. The fact should be recognized by the General Yard Master that these men are his "eyes and ears" and that his success is very largely dependent upon their fitness and general ability. Furthermore, they are the men that are in training for promotion to General Yardmastership or even more responsible positions, and it is very important that they should be the right kind of men.

In dealing with representatives of industrial plants, associates, train and yard crews, and others, the resourcefulness of the General Yard Master is taxed to a high degree, and successful results depend largely upon his ability to organize his forces so as to control and smooth out differences which are constantly arising, where employees, other than those under the immediate jurisdiction of the General Yard Master, are a source of more or less annoyance.

In dealing with subordinates, or with representatives of shippers, consignees, and others with whom he must come in daily contact, the General Yard Master should have the full support of the Superintendent and Train Master, he should also have full authority over the men under his jurisdiction, and also sufficient freedom in recommending discipline for misdeeds occurring in his territory.

With a free hand in matters of this character, he will at once command the respect and loyalty of his men, and this will also increase the respect of terminal employees, train men, and others, who are constantly moving in and through the Terminal district.

The Terminal Freight Agent should be a man of wide experience in terminal freight handling, broad minded, displaying qualities of pleasing personality and an even temper in the adjustment of differences occurring through his more frequent contract with the public in handling matters of a general character, as well as the accounting features of his office.

As a general proposition, it might be said that the General Yard Master and Terminal Freight Agent should, as far as possible, allow the detailed work or office routine of their respective organizations to be performed by their chief clerks and assistants, thus enabling them to confine their efforts principally to supervisory work throughout the entire territory.

The Terminal Train Master, The General Yard Master, and the Freight Agent should, from time to time, hold joint staff meetings, at which there should be representatives of all classes of assistants in charge of the distribution of traffic in the different districts of territories, which comprises the General Terminal District.

At these meetings a general exchange of ideas, differences of opinion, and adjustments of questions can be talked over, conditions regulated, so that the men become more thoroughly acquainted with each other's territory, all of which help to facilitate the movement of cars through the different districts.

It has also been found to be advisable to include certain of the yard clerical force in these meetings, as these discussions tend to develop their abilities, and by securing an expression of their ideas and suggestions, their qualifications for advancement may be brought more closely to the attention of the Train Master or others who are constantly on the lookout for material for promotion.

Too much emphasis cannot be laid upon the good to be derived from staff meetings, as mentioned above, as numerous questions of mutual interest covering improved methods of terminal operation are constantly arising, some of which are mentioned here as being among the more important subjects wherein there usually is room for considerable improvement, i. e.

1. The loading of cars on floats for pier deliveries.
2. Spotting on piers in train order, as to destination in order that a minimum amount of switching will be necessary to train cars for outbound movements.
3. The handling of fast freights, wherein the time is limited for closing of doors, inspection and sealing before departure of train, etc.
4. Placing cars in pier sheds or at platform for unloading and reloading.
5. The delivery and handling of card waybills for in and outbound movement of cars.
6. Discussion of new Rulings for the Interstate Commerce Commission, Public Service Commission, Government instructions, etc.
7. Discussion of new instructions issued by officials of the Company, heads of departments, etc.

All of the above are subjects which can be discussed to the mutual advantage of all terminal employees, as it has been found that results along these lines have been both pleasing and profitable, resulting in a better understanding of each other's methods, eliminating sources of friction and misunderstanding so frequently found where men seldom meet, and in addition securing the advantages to be gained by freedom of personal acquaintance.

Meetings of this character develop information of an educational and practical value, which it would be almost impossible for the Terminal Train Master, General Yard Master, or Freight Agent to secure without the meeting of said assistants from the different districts of their territory.

The American Commerce Association

Note.—This new Department of the Railway World is devoted to the interests of the American Commerce Association, the national organization of traffic men, for traffic men, by traffic men. The object of the organization is to set standards of efficiency for employers and employes, as it is believed that the present tremendous waste of time and money in traffic work, demands employment of trained men. The Railway World is in entire sympathy with this movement, and it believes it will not only develop more harmonious relations between those who employ and those who operate the railways, but will serve to more fully inform the business men of the country regarding rate matters and thus enable them to more intelligently and economically employ our transportation agencies. This new department in the Railway World will discuss matters pertaining to traffic efficiency and the Traffic Efficiency Clubs of the Association, located in the various cities of the country. Under this heading practical railroad and industrial traffic matters will also be discussed.

Growth of the Organization.

THE rapidly growing membership of the American Commerce Association in New York City has made it necessary for District Secretary C. E. Garrabrant to establish an office at 628 Tribune Building, through which the Association will keep in touch with its members in the nation's metropolis.

It has also been found necessary to establish a branch office of the "A. C. A." at Boston, Mass. District Secretary J. P. Barclay is now in that city, working in the interest of Traffic Efficiency, and is meeting with the same enthusiastic reception and co-operation which traffic men and traffic students are according the methods of the Association wherever they are introduced.

The Traffic Efficiency Club of Des Moines (Ia.), organized during the past month, is now meeting regularly on the first and third Thursdays of each month, with a membership already past the "fifty mark." Among the recent members of this club are five practicing attorneys at law—all of whom are industriously qualifying for the higher traffic positions, through the Training Service Membership of the "A. C. A."

Traffic men—both railroad and industrial—have been quick to recognize the benefits to be derived from membership in the national traffic efficiency organization, and the American Commerce Association now numbers among its members many traffic experts of national prominence. Among the recent additions to this list are the following:

C. E. Harris, general Eastern agent, Minneapolis and St. Louis Railroad, New York, N. Y.; C. E. Bell, compiler Hartman's Western Freight Rates, Chicago, Ill; E. B. Johns, general Eastern agent, Pere Marquette Railroad, New York, N. Y.; Dwight N. Lewis, commerce counsel, Iowa State Railroad Commission, Des Moines, Iowa; R. S. Kaskel, traffic manager, Grand Atlantic and Pacific Tea Company, New York, N. Y.; J. C. Lincoln, traffic manager, Merchants Manufacturers' Association, New York, N. Y.; C. J. Wilson, traffic manager, Lake Superior Iron and Chemical Company, Detroit, Mich.; H. G. Wilson, traffic manager, Toledo Commerce Club, Toledo, Ohio; J. H. Hersey, Eastern traffic manager, Montgomery, Ward and Company, Brooklyn, N. Y.; E. Tarof, traffic manager, Brunswick, Balke Collender Company, Brooklyn, N. Y; C. C. Lewis, traffic manager, American Smelting and Refining Company, New York, N. Y.; W. H. DeWitt, Jr., traffic manager, Western Electric Company, Brooklyn, N. Y.; E. M. Heigho, president Pacific and Idaho Northern Railway Company, New Meadows, Idaho; H. H. Bernstein, manager, Joint Rate Inspection Bureau, Chicago, Ill.; E. G. Ward, president, The Railway World, Philadelphia, Pa.; Clifford Thorne, chairman, Iowa State Railway Commission, Des Moines, Ia.

The first step in determining the cost of shipping goods is to intelligently classify them. There are approximately twenty-five thousand different kinds of goods offered for shipment in this country. To assign to each article an individual rate between all points would be practically impossible. In order to solve this problem, then, it is necessary to classify goods, placing a large number of articles, possessing similar traffic qualities, into one class or group, and charge a certain rate per hnudred pounds far the transportation of all articles in a given "class" between any two points.

The various principles involved in the proper solution of this immense problem have been clearly and concisely outlined in "Principles of Classification"—the second volume in the American Commerce Association's big Traffic Library.

The actual application of the principles in question to the shipment of goods is then taken up in the third volume—"Application of Classification and Principles of Freight Charges." Various articles of commerce are taken up, one by one, and a scientific analysis made of the factors which caused them to be assigned to their respective classes. In this manner the student of scientific traffic work obtains experience knowledge in the classification of goods. In this volume the subject of the Classification of Property for Transportation is covered in the following order:

Chapter I. Methods of Classifying Articles of Commerce within and from the New England and Trunk Line Territories to other points.

Chapter II. Classification of Property within and from Central Freight Association Territory to other Points.

Chapter III. Classification of Property within and from Canadian Freight Association Territory to other Points.

Chapter IV. Classification of Property within and from Canadian Northwest to other Points.

Chapter V. Classification of Property within and from Western Trunk Line Territory.

Chapter VI. Classification of Property from Utah Common Points to other Points.

Chapter VII. Classification of Property Moving from Colorado Common Points to other Points.

Chapter VIII. Classification of Property from Missouri River Points to other Points.

Chapter IX. Classification of Property from Louisiana Common Points to other Points.

Chapter X. Classification of Property from Oklahoma Points to other Points.

Chapter XI. Classification of Property from Arkansas and Texas Points to other Points.

Chapter XII. Classification of Property from Mexican Points, New Mexico and Arizona to other Points.

Chapter XIII. Classification of Property from Trans-Mississippi River Points and Pacific Coast Points to other Points.

Chapter XIV. Classification of Property with and from Southern Classification Territory to other Points.

Chapter XV. Methods of Classifying Articles Not Definitely Indexed in the Classification Schedules.

Chapter XVI. Methods of Classifying Articles the Class of which is Determined by the Nature or Inherent Transportation Quality of the Article.

Chapter XVII. Methods of Classifying Articles Not Provided for in the Classification Schedules.

Chapter XVIII. Freight Qualities of Articles as Factors of Consideration in Their Classification.

Chapter XIX. The State Classifications.

Chapter XX. Uniform Classification.

Conscientious study of the information contained in the two volumes in question should enable one to intelligently handle any problem which may arise in his own work, having to do with the Classification of Property for Transportation.

Application of Tariffs (Part I).

The fifth volume of the Traffic Library—"Application of Tariffs (Part I)"—will be received from the printer within the next week. This volume covering the application of tariffs within and from the Official and Canadian Classification Territories, presents information not available in any other place or form, in one publication.

The Interstate Commerce Law makes it unlawful for any common carrier to give, or any shipper to accept, any different interstate rate than that which is published in the tariff on file with the Interstate Commerce Commission at the time the shipment moves.

It is, therefore, apparent that a knowledge of the proper tariffs to use in computing the lowest legal rate within and between the various traffic territories, rate groups and rate construction points in the United States is an absolute necessity. It would, indeed, be hard to conceive of any information more vitally essential to the highest results in traffic work than that contained in this volume.

Industrial Traffic Departments—Organization, Management, Systems and Records.

In addition to the technical knowledge of classifications, tariffs, rates, claims, tracing shipments, special freight service, preparation and packing of goods for shipment, together with a thorough understanding of the essential and practical principles of handling traffic, the traffic manager must understand the organization, systemization and management of a traffic department, if he would attain maximum efficiency in this field of work.

This subject is thoroughly and exhaustively covered in a volume just going to press, entitled "Industrial Traffic Departments—Organization, Management, Systems and Records." The object of this treatise is to enumerate the principal duties of the traffic manager, and, in a general way, deal with the problems of transportation, in so far as the industrial corporation is concerned.

The presentation of claims correctly prepared is advantageous to claimant and shipper alike. Rate and classification adjustments are more easily obtained when the applicant advances sound arguments in which are contained only relevant discussion. To that end the agent of the shipper must have knowledge of the underlying principles of rate and classification construction.

The time is past when ruinously low rates prevail for the favored few and gratuitous service for the particular friends of the carriers' agents were the rule. There is now a stability in the cost of all kinds of transportation service, and the only variation is that resulting from change in commercial conditions.

In no field does greater opportunity lie for the man whose qualifications will enable him to succeed, than in that of industrial traffic management. The railroad managers welcome the industrial traffic manager for the reason that the difficulties arising through misunderstandings are minimized when they are possible of adjustment with those trained in traffic work who can understand the viewpoint of the carrier as well as that of the shipper. It should, therefore, be of first consideration to the scholar advancing to the position of traffic manager to so proceed in his line of activity as to create a respect for himself in the minds of railroad agents and others that his reputation may always be of the best and his honor never questioned by those with whom his business throws him in contact. Questionable claims should be in no case presented. Requests for rate of classification reductions should only be made when a possibility or probability exists for increased traffic, or retention of traffic which would otherwise be lost to the carriers as well as to the industrial corporation.

There can be no greater mistake made than to believe that success in an industrial traffic department is only possible at the expense of the carriers. There are countless ways of saving in transportation charges which at the same time result in stoppage of loss to the carrier. It has been said that the manufacturers cannot be prosperous if the railroads are not enjoying good earnings. It is beyond question a fact, however, that the railroads cannot be prosperous if the manufacturers and producers are not successful, for the producer and manufacturer must originate the business before the carrier can realize a profit on its transportation. Therefore, the two interests, shipper and carrier, are mutual, and that the business of both may be prosperous it is essential to co-operate in expanding the trade of the producer on a basis not unremunerative to the carrier.

To attain maximum success in this profession, the traffic manager must of necessity master the principles of traffic in their entirety. He must be ambitious, conscientious, a student always, and he must adapt himself to the necessities of his position. In short, he must never cease striving to increase his efficiency.

Classification of property for transportation has probably received more attention at the hands of shippers, carriers, the Interstate Commerce Commission and the several State railroad commissions than any other single subject. No department of traffic work has undergone more startling or more gratifying evolution, nor is any factor more essential to the computation of the lowest legal transportation costs. In view of these facts, it has been deemed expedient to submit, at this point, an article prepared by one of the members, tracing as briefly as possible, the steps leading toward uniform classification.

Uniform Classification.

At the time of the original passage of the act to regulate commerce, a state of dire confusion existed in the making of rates. The early development of classification of freight by the railways in the United States was not along any definite lines. Acting independently, carriers originally adopted individual classifications. It has been estimated that there were, at one time, as many as one hundred and thirty-eight distinct classifications in Eastern Trunk Line territory, varying in the number of classes provided, each classification built up independently of all others to serve the needs of the particular road to which it applied.

The formation of through routes over connecting lines and the growth of through traffic necessitated the establishment of classifications to govern such through traffic, in addition to these local classifications gotten up solely to serve the individual carrier. By associations among the lines, through classifications were adopted, known as the "Trunk Lines Westbound Classification," "The Eastbound Classification," "The Joint Merchandise Freight Classification," "The Middle and Western States Classification," and the "East and Southbound Classification." Thus were established classifications for through traffic in various sections of the country, some governing large areas and others small territories.

The result of this multiplicity of classifications was great confusion in the rate situation. In many instances a single line of railway had two or more classifications in effect; sometimes as complicated an arrangement as having one classification for local traffic, one for through traffic, one for traffic destined to certain territory, another for traffic coming from a given area, or possibly one for each direction in which the traffic moved upon its own line.

The existence of so many classifications was a public evil, and resulted in constant embarrassment in the interchange of traffic between carriers, and an utter impossibility of quoting rates on through traffic with any degree of accuracy. Shippers suffered heavily by the infliction of freight charges far in excess of what they were led to believe they would amount to when inquiry was made for a rate.

The first distinctive step toward the abolishing of this utterly foolish practice of classification-making and the start of a trend toward uniformity was in the prohibitions of unreasonable discrimination by the act to regulate commerce in 1887. There began the movement for uniformity, for the carriers realized then that they could not observe this law without establishing, almost as an initial step, greater uniforimty in their classification of freights.

In 1887, contemporaneously with the taking effect of the act to regulate commerce, a so-called Official Classification was adopted—as the first real step towards greater uniformity—by the lines generally throughout the territory roughly described as north of the Ohio and Potomac rivers and east of a line drawn from the junction of the Ohio and Mississippi rivers, through St. Louis to Chicago. Out of 131 lines of railway in this territory at the time of its adoption in 1888, the Official Classification governed exclusively the traffic on 87.

In the West, as early as 1882, "The Joint Western Classification"—the forerunner of the present Western Classification—was established and adopted, first, by the lines operating west from Chicago. This schedule became effective in 1883, and its adoption was effected in 1889 by some sixty-nine railroads of the West. These lines were joined by the roads in the Texas association and by the lines in the Transcontinental Bureau, so that this Western schedule was practically governing all lines operating in the territory west of Chicago and St. Louis to the Pacific Coast.

South of the Ohio River and east of the Mississippi River the lines, in 1889, adopted the classification of the Southern Railway and Steamship Association, and this latter schedule became known as the Southern Classification shortly thereafter.

At this point the advance towards uniformity came practically to a standstill, and all that has occurred since in the way of actual result has been the absorption of special and exceptional classifications into these three great interstate classifications.

At the present time the three interstate classifications known as the Official, Western and Southern classifications, subject to the exception sheets and commodity rates of the individual carriers and agents and the limited use of certain State classifications, transcontinental tariffs, and the Canadian classification are the only classifications applying on interstate traffic. In many places these classifications overlap, and articles shipped from a point in one territory to a point in another are sometimes governed by the classification in effect at the point of origin, and at other times by the classification in effect at the place of destination. Naturally confusion arises, and particularly so in the case of shipments to and from points located comparatively near a classification boundary. Thus, St. Louis, Mo., applies the Official Classification on a shipment destined to New York, and the Western Classification on a shipment destined to Omaha, and the transcontinental tariffs and Western Classification on a shipment destined to the Pacific Coast terminals.

The first attempt towards further detail unification in classification schedules was made by the officials of the carriers, as early as 1887, when it was sought to unify the Official and Western classifications. This movement was checked and defeated by a series of disastrous rate wars between the carriers.

The next step towards classification uniformity was taken by the Government, when, in 1888, the House of Representatives passed a resolution directing the Interstate Commerce Commission within three months to prescribe a uniform classification for all the roads in the United States. The resolution did not receive Senate action, as representations were made that if the railroad companies were given further time they would work out the problem without legislative action. Thereafter a meeting was held in December, of the same year, at Chicago, where the leading traffic officials of the carriers gathered for a discussion of this important subject, and a committee of sixteen was selected and instructed to endeavor to combine the three classifications into one general classification. Subsequent meetings were held by this committee at various times and places, and in June, 1890, a Uniform Classification was formulated, agreed upon and recommended for adoption on January 1, 1891. This effective date was thereafter postponed until March 1, when, with the adjournment of Congress two days later, the whole matter was passed.

As early as 1894 the Interstate Commerce Commission reported to Congress, in its Annual Report for that year, that it was "interesting to note that definite steps have been taken by the carriers in different sections of the country, now operating under the three principal freight classifications, to establish a standard classification which shall take the place of existing separate classifications. This work is now well in hand, the carriers from the different classification territories having assigned persons especially qualified for the work as their representatives on a committee which has been organized embracing the combined interests. A committee of executive officers of the same interests has also been formed, which will exercise supervision of the work to be formed by the committee first named. From the foregoing movement, as well as from the information which has reached the Commission, it is quite evident that the carriers are impressed with the desirability of harmonizing the conflicting features of the existing classifications for the convenience of the public, as well as to bring about uniformity in the provisions of a classification, which are essentially direct factors in the charges for transportation, as also the stability in the latter, which will necessarily follow under these arrangements; and it may be said that, under the organization which has been perfected by the carriers, material progress may be expected in connection with this important matter."

This effort looking toward the establishment of a uniform classification basis for the entire country applicable to interstate traffic came to naught, but the Interstate Commerce Commission again brought the matter to the attention of the Congress in its Twenty-first Annual Report, for the year 1907, in which it stated:

"In the Eleventh Annual Report of the Interstate Commerce Commission to Congress the matter of a uniform classification was treated at considerable length, and it was stated that a single classification was regarded as essential to insure compliance with the law and to promote greater economy in the administration and conduct of transportation. The Commission also express the view that it was of interest and value to the carriers themselves.

"It was further pointed out that the present diversity, due to the various classifications, results in many discriminations and losses, and that there is no single step that could be taken by the carriers which would go so far to insure the establishment of stable rates as the adoption of a single and comparatively fixed classification. The situation, as disclosed in the report referred to, of the lack of progress that had been made by the carriers in this connection in the preceding years led the Commission to suggest that it be authorized and required to prepare such a classification, and to indorse the action which was proposed by a bill then pending in the Senate.

"In reaching these conclusions the Commission was not unmindful of the work involved in making uniform the then existing classifications, and took occasion to say: 'To establish theoretical, and, to some extent, arbitrary classes, whether they number six or twenty-five, and to thereby provide rates for all articles which yield the necessary revenues for the carriers, do full justice to local interests and the whole country, and satisfy the reasonable demands of shippers everywhere, is a task of great magnitude, and presents many obvious and serious difficulties; * * * * in the nature of the case there must be concessions and compromises, for it would be too much to expect that such a change in transportation methods could be effected without some friction and some losses.' It was also stated that 'it is evident the carriers themselves, by mutual concessions and through voluntary and harmonious action, can accomplish this reform with much less losses, embarrassment and friction than will presumably result if Congress or some delegated tribunal establishes a classification for them.'

"The foregoing briefly sets forth the views of the Commission as to the desirability of a uniform freight classification; it also indicates the extent of the undertaking, as well as the further view repeatedly expressed by the Commission, that the task is one which would be primarily left to the carriers to work out."

It is interesting, and perhaps significant, to read the following excerpts from the report of the Uniform Classification Committee which tendered for adoption the uniform classification of January 1, 1891, and which passed to a silent demise with the ending of the congressional session on March 3, 1891. This committee comprised direct representation of the New England Freight Association, Central Freight Association, Western Freight Association, Mississippi Valley Railroads, Trunk Line Association, Southern Railway and Steamship Association, Trans-Missouri Association and the Southern Interstate Association, and for a while the Transcontinental Association, but this interest withdrew before the consummation of the committee's work. It is noteworthy that this committee entered upon the prosecution of its task with a showing of a broad and liberal spirit, and while at no time forgetful of the transportation interests they represented, its members endeavored to keep in view the national rather than sectional necessities for classification reform. With a recommendation for the reduction of the number of commodity rates, and their future use conceded to the carriers but subject to a much restricted application, the committee reported:

"The continued operation of the interstate commerce law made plain the necessity for greater uniformity. In deference thereto, and also to meet the demand for through lines, it became essential to facilitate the quotation of through rates between points far removed. This could most readily be done by the issuance of tariffs governed by one classification. If two or more classifications were used, resort must be had to numerous commodity tariffs. Moreover, the disparities encountered proved annoying to shippers and embarrassing to the roads. The public failed to perceive, nor was it always possible to explain why articles of common use should be classified differently east and west and north and south of certain dividing lines. * * * *

"The constant increase of traffic interchange with railroads in the populous States, together with the legal requirements as to the publication of joint tariffs, emphasize the desirability (no less than the necessity) of at least approximating uniformity in freight classification. Without such reform in the territories wherein dissimilar classifications overlap, it is impracticable to avoid discriminations such as are forbidden. Furthermore, it is impossible in all cases to insure the equalization of through rates via the several gateways between large producing and consuming sections when different rules and classifications prevail upon connecting lines. Confusion and liability ensue and necessarily will continue until the more glaring differences are removed. That relief your committee labors to afford."

The next happening to give stimulus to uniform classification agitation was the passage of the Hepburn law in 1906 which, among its other provisions, required the establishment of through rates and through routes. This requirement again emphasized a still more imperative need for uniform classification.

In 1907 the carriers again gave serious consideration to the matter of uniform classification. They appointed another committee of fifteen members, five from each classification territory. It was the duty of this committee to ascertain whether or not uniform classification was possible of accomplishment and what procedure should be followed by a committee later to be appointed for the express purpose of producing a uniform classification. It was the judgment of this temporary committee, at the conclusion of three months' constant investigation, that "while establishment of a uniform classification is impracticable at this time, it can ultimately be worked out along intelligent and satisfactory lines."

This committee also reported that uniformity was entirely possible and practicable of immediate establishment as to rules, descriptions of articles, packing requirements, and minimum carload weights, and it gave as its opinion that such uniformity must in any event be accomplished before uniform classification could become a reality. It recommended the creation of a committee, whose exclusive work should be to prepare the uniform rules, descriptions of articles, packing requirements, and minimum carload weights. Twenty-one executive officers of the carriers were appointed as an executive committee, and this committee in turn created a "working committee" of nine traffic men, who were to devote and have since devoted their entire time to the work. This committee has become known as the "Uniform Classification Committee," and since September 15, 1908, its labors have been confined exclusively to the titanic task of classification reciliation.

The Uniform Classification Committee originally planned to proceed continuously with the revision of rules, descriptions, and minimum weights, until it was ready to propose a complete uniform classification. It was decided to suggest to the territorial classification committees—the Official Classification Committee, the Western Classification Committee and the Southern Classification Committee—such changes as were from time to time decided upon by the Uniform Classification Committee to be desirable as tending toward greater uniformity.

The committee first considered the rules of the three interstate classifications, and following this work took up general descriptions and articles packing requirements, and minimum weights. Sessions were held at which shippers were present to advance their views as to the proper adjustment in the new scheme of things of their article or articles, and personal inevstigations by members of the committee were carried on in the field, at the factory, and in the industrial plant, that the committee might become more practically conversant with the shipper's conditions. The findings of the Uniform Classification Committee were submitted from time to time to the territorial classification committees, and they in turn held further hearings on the subjects thus presented to them, in which the shippers were afforded further participation. In this way the rules as they appeared in Western Classification No. 51, which was the subject of searching investigation by the Interstate Commerce Commission, in 25 I. C. C. Rep. 442, were an adoption by the Western Classification Committee of the findings of the Uniform Classification Committee.

This Uniform Classification Committee has its working headquarters in the city of Chicago, Ill. The creation of a permanent sub-committee of the Western Classification Committee to be in continuous session with headquarters at Chicago, referred to in this volume, was the result of the adoption of a recommendation of the Uniform Classification Committee, which it is hoped will be followed with similar action on the part of the Official and Southern Classification committees.

A fitting summary of this brief sketch of the development of the work of uniform classification is embodied in the following recent report made to the Interstate Commerce Commission by the chairman of the Uniform Classification Committee:

"A special committee, comprised of men formerly associated with the railroads and who have expert knowledge in matters relating to freight classification, has been continuously employed for the last three years in the work of unifying the rule, descriptions of articles, packing requirements and minimum carload weights as appearing in the respective territorial classifications.

"The conditions in the different sections of the country throughout which the existing classifications apply are varying, and these classifications have been adjusted to conform to the commercial and transportation necessities of such sections. The present effort is for the purpose of bringing about a standardization of shipping requirements as to rules, methods of packing, descriptions of articles, etc., which will be uniform throughout the United States. When it is recalled that the respective classifications provide descriptions numbering from seven to nine thousand in each territory to cover the various forms of packages, it will be appreciated that the work of unifying all such descriptions into terms which shall be alike for all sections and at the same time not disturb the commercial requirements or customs and suitably provide for every possible form of package that may be offered for shipment is a task presenting many difficulties and perplexities The many phases of the subject must be carefully reviewed from the standpoint both of the carrier and of the shipper. It becomes necessary to study the freight rate question, industrial matters, the markets of production and consumption, and to maintain for each article a harmonious relation to all other commodities to which it may commercially relate or with which it is competitive.

"The committee has sought the co-operation of shippers from whom information and advice are obtained, and under the methods followed every means has been accorded interested shippers to explain the character of their shipments, their particular requirements, and to suggest appropriate shipping descriptions and classification assignments. The shipping public has taken a great interest in the subject, and, under the methods of the Uniform Committee, as well as those of the respective territorial committees, the fullest opportunity is afforded to be advised of the contemplated changes arising from the work of uniformity, as well as with respect to their incorporation in the separate classification governing the different sections.

"It is considered by the carriers that the procedure followed and the progress made has been as great as under any competent method which could be devised for this purpose, and when stating the result of the work up to this time it is shown that the Uniform Committee has reviewed 65 per cent of the material in the Official Classification, the same amount of that in the Western Classification, and 75 per cent of that in the Southern Classification, which means that of the rules, descriptions of articles, minimum weights, etc., contained in the respective classifications the percentage stated for each has been analyzed and brought to the basis of uniformity for all. As this work has been completed, the sectional classification committees have adopted the recommendations of the Uniform Committee as rapidly as conditions would permit. Thus, of the total recommendations toward uniformity so far made, 75 per cent thereof have been incorporated in the Official Classification, a like percentage in the Western Classification, and between 80 and 90 per cent in the Southern Classification. The remaining proportion between these percentages and the whole number of recommendations made by the Uniform Committee is under consideration and investigation for later adoption."

California and The Southern Pacific

By William Sproule, President, Southern Pacific Comapny.

Note: The following paragraphs are taken from an address delivered at a luncheon given by the Home Industry League of San Francisco on September 2d, 1915. Further reference to the Southern Pacific's influence upon the welfare of the State of California will be found in the editorial section of this issue.

MY personal administration of the lines of the Southern Pacific Company pertains to the Pacific System; that is, west of Ogden, Portland and El Paso. For these lines, the gross, the expenses and the net, I am immediately responsible. Upon these lines, commonly known as the Pacific System, we give employment to forty thousand people. Of these, thirty thousand are employed in the State of California, Of these, again, eleven thousand are in San Francisco and immediately about San Francisco and pertaining to your immediate business here, eleven thousand men are on the payrolls of the Southern Pacific Company. There are very few railroad men who are not married, and you can figure for yourselves what is meant directly and indirectly by eleven thousand men on the payroll in San Francisco and about this Bay.

Of the payrolls of the Southern Pacific Company there are paid in California some thirty millions of dollars annually, which does not include the salaries of executive officers or of any officers outside this State. In San Francisco and immediately about San Francisco Bay the payrolls amount to between ten and eleven millions of dollars. This appertains to your immediate baliwick. That payroll means purchasing power. It means much that relates to your business, in its direct and indirect effects.

With respect to purchases from firms located in San Francisco and directly about the Bay, the purchases of materials and supplies amounted last year, which I am sorry to say was a very poor year to four millions of dollars. The policy of the company in respect of these things which we can buy in the immediate course of business from the merchants and manufacturers here, is that we do buy from them.

With respect to the necessary public burden of taxation, I think you are aware that the Southern Pacific pays over one fifth of the State taxes of California, or something over $3,300,000. This means, that based upon our earnings of the last fiscal year, after paying our operating expenses, the Southern Pacific paid into the treasury of the State of California 15½ per cent of its net earnings before it paid any of its fixed charges. Of our gross earnings in this State we pay into the treasury of the State 5¼ per cent. I might illustrate this. When you enter one of our dining cars and partake of a meal that costs, we will say, one dollar, the Southern Pacific pays 5¼ cents of that dollar into the State treasury before we have an opportunity to pay for the food of which you have partaken or the wages of the men who prepared and served it to you. Of the taxes which I have mentioned, about a million and three quarters are devoted to purposes of education in this State, including the State University. I shall not deal further than this with figures, but I have thought that it might interest you to have a look-in upon certain items of our business that concern you in your business, concern us as a community generally, and concern all in their relation to this great State in which we live.

Gentlemen, I heard many of you rising in your places announcing that your goods were made in California. I may say that the Southern Pacific Company was made in California. It originated in California was built from California, has been extended and ramified for the purpose of extending the business of California and it is a company that is not merely with you, it is a company that is of you. We ask you to recognize this in the questions that come before you for consideration from time to time. We ask you to recognize, if you will, that the company and the officers associated with me in the administration of the company, and the men under them working out the problems of that company, are all desirous that the Southern Pacific shall give to this community and this State the best service of any in the United States, and make the company one of which this people and this State and this State government shall be proud. With your help and your generous recognition of our aims and purposes, your recognition of our needs and wants, your knowledge of the fact that capital can be found for extensions and improvements only by making it attractive to the people who have the money for such investment,—If you will do your part in these things, and I am sure you will,—there is no reason why we should not have among us, serving and helping us in all respects, a railroad that shall be run so well and serve you so well as to demonstrate that private ownership will do all for you that public ownership could desire.

I am here among friends. I have no special plea to urge. I believe that this Exposition has disclosed to tens of thousands of the citizens of the United States the fact that in San Francisco and about this Bay region we have one of the most desirable summer climates in the world, that here men, women and children may be comfortable and happy, with good appetites and abundant sleep, at a season when the rest of the United States is struggling with sweltering heat. In addition to this, the word has gone forth that in this Exposition year San Francisco has not overcharged its guests or tried to take advantage of them, and in return for that we will have started this year a pilgrimage towards San Francisco Bay, by the people of the United States, that is bound to redound to our great advantage as a whole, and to our merchants and manufacturers and home industries in particular.

I have only to say further that the Panama Canal has brought to the Southern Pacific, as it has to all transcontinental railroads, new problems which largely remain yet to be worked out. The benefits of the Panama Canal have been offset by the European war, which has taken so much shipping off the seas and has restricted foreign commerce. If, however, the Canal does for us any important fraction of what its champions claim for it, then we have no reason to fear for the future. It means that both in the transportation business and in the manufacturing business and in your home industries a new element has entered, which must be taken into your calculations, but in these and in all other problems the railroad company and the community go hand in hand. We prosper together or we suffer together. You have never succeeded in being prosperous when the railroad business was in a condition of depression. Gentlemen, as between a condition of many idle cars and a superfluity of service, or few idle cars and perhaps a somewhat congested service, I believe, after your experience of the times we have been passing through, you would agree with me that the periods when it was hard to get transportation were the periods during which we all prospered. We will hope that those times, to which we all look forward, will soon return again, and I for one believe that they are coming and that we shall all share in prosperity together.

Rivers and Canals

NOTE.—From an address delivered before the September meeting of the Central Railway Club, by Mr. William Elmer, superintendent of motive power of the Pennsylvania Railroad. Dealing specifically with the Erie Canal, he proceeded as follows.

IN 1895, an effort was made to inject new life into the Erie canal, which had been gradually losing traffic for some years, by a scheme to tow boats by electric motors, and a demonstration was made in the fall of that year at North Tonawanda, out of which the politicians made much capital and the proposition was put forward to appropriate $9,000,000 for the improvement of the canal, with the possibility of developing a system of electric tractors. This money was appropriated, and shortly after it was spent, an estimate was then made that it would cost at least $82,000,000 to complete the work in a proper manner, which was $20,000,000 more than all the outlays up to that time. An appropriation of $101,000,000 was voted in 1903 to build the new barge canal, and this money has now been spent, together with more than a million and a half dollars, which has not been covered by any appropriation. Up to the present time, land damage claims have been filed against the State to the amount of $19,000,000: water power damage claims to the amount of $38,000,000; railroad crossing claims to the amount of $8,700,000, and damage claims by contractors to the amount of $7,000,000, making a total of over $72,000,000.

While it is possible that not all of these claims will be allowed, the courts have already awarded over $10,000,000, and it is quite probable that more than half of the total amount will have to be paid. While the development of the canal has been put before the voters with all the powers of "spread eagle" oratory, nothing has been said, until quite recently, concerning any facilities for the use of the canal after it shall have been completed. In 1911, the Legislature appropriated $19,800,000 for the purpose of constructing terminals for the barge canal system and this was approved by a referendum vote of the people in November of that year. It is quite likely that this sum will be far less than the actual cost of these facilities, and will undoubtedly bring in large damage claims for property taken for these purposes. The State Engineer now estimates that at least $27,000,000 will be required to complete the canal, and how much additional it would be hard to predict. In 1911, the City of New York instituted a study of the terminal facilities needed at that point, and the final expenditure determined on was $12,000,000. It is hardly likely that this is sufficient to do what should be done. The total cost of the improvements on the canal system would make the average cost per mile in the neighborhood of $340,000. The average capitalization of the railroads of the United States is about $60,000 per mile.

Any estimates of the cost of transportation on the canal must be considered in connection with the fact that the State charges no tolls, the entire interest on the bonded indebtedness and the cost of maintenance, and upkeep, being paid out of the annual taxes. This means that the average tax payer in the State of New York is helping to support a system of transportation from which he may be deriving no benefit whatever; and apparently the only persons who benefit from the expenditures of these enormous sums are the politicians, contractors and a few favored shippers who use the canal provided for them at the cost of all the people in the State, and have to pay only the actual direct haulage charges. Furthermore, it has not yet been determined what is the proper depth, width and size of locks which should be provided for in the construction of a barge canal connecting Buffalo with the Hudson River. The usual reason alleged for the failure of the old canal to continue handling the traffic which it formerly had, was on account of the inadequate depth of the seven-foot channel. It was thought that larger boats would haul larger loads at a cheaper transportation cost, and that if the canal were made deep enough, boats could load at the various lake ports and pass through to the terminal at New York Harbor without breaking bulk, but no investigation has satisfactorily answered the question of what should be the depth from an economic standpoint; and if all the costs of these great enterprises are considered, it can be shown that the entire amount spent on the improvements of the canal will be a waste of money and a tremendous economic loss to the State.

The amount of money spent by the United States Government in the improvement of the rivers and harbors and for canals, amounted to a total of more than $400,000,000 between the years 1802 and 1902. This was divided as follows: for rivers, $221,869,759; for harbors, $147,448,903; for canals, $33,237,857.

In the years since 1902, considerable additional amounts have been appropriated, and there are now pending projects which have already received the sanction of Crongress amounting to over $280,000,000. Over $86,000,000 worth of new work has been reported favorably by the Army Engineers to Congress, but has not yet been acted on. While undoubtedly much of this work is important and useful and will earn adequate returns on the investment, yet it should be borne in mind that a great deal of money can be wasted in development of rivers and canals, as railroads already in existence could handle the probable traffic for many years to come at much less cost.

Within the memory of many men still living the steamboat and barge traffic on the Mississippi river, and others in this valley, was a great industry, employing many men and handling a tremendous volume of passenger and freight traffic. Shortly after the war, however, the railroads began taking this business away, and in the port of St. Louis alone, the traffic had declined until in 1880, the river commerce was 2,120,825 tons, and in 1910, it had dwindled to 191,965 tons. In the 17-year period, from 1890 to 1906, the river commerce of St. Louis fell from 1,260,000 tons to 317,000 tons, while in the same period, the rail business increased from 15,000,000 to about 45,000,000 tons. The railroads have shown a steadily decreasing operating cost, notwithstanding the fact that they have to build and maintain their road bed, while the State and National Governments provide the road bed and canal transportation lines. It is not likely, therefore, that much additional canal work will be done in this country for many years to come, and if all the expenses of building and maintaining canals were considered in determining their operating costs, as has to be done in the case of railroads, it is quite evident that many of the projects on which the millions of dollars have been spent will be found to be uneconomical in their operation today.

The Westinghouse Exhibits at the Panama-Pacific International Exposition

UNDOUBTEDLY every one of the more than eleven million persons who have so far been to the great San Francisco Exposition, as well as those who still have this treat in store, will be interested to learn that the mammoth electric locomotive mounted on the turntable in the Transportation Palace has received the Grand Prize, the highest award in the gift of the Exposition.

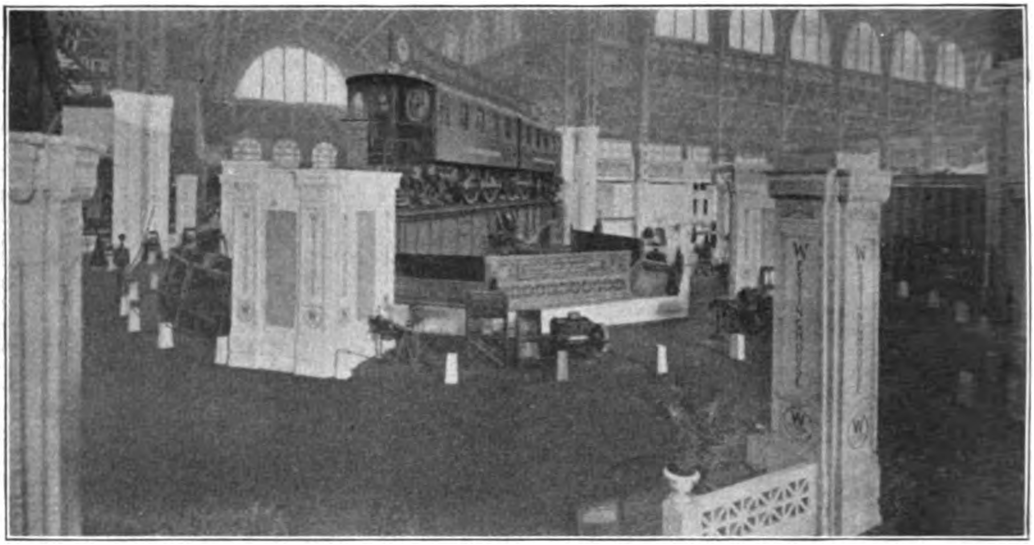
This locomotive which, owing to its being mounted twelve feet from the floor at the intersection of the two main aisles of this most interesting part of the Exposition, completely dominates the Palace of Transportation, forms a part of the exhibit of the Westinghouse Electric and Manufacturing Company.

In addition to an extensive display of apparatus used in connection with the transportation industry appropriately grouped around the locomotive, the Westinghouse Company also exhibits in the Machinery Palace, and in "The Mine" in the Palace of Mines and Metallurgy, and in addition has succeeded in getting several hundred other exhibitors to use Westinghouse motors in connection with their exhibits.

Placards prominently displayed around the locomotive inform the visitor that it is one of thirty-three 4,000-horsepower 650-volt direct

WESTINGHOUSE ELECTRIC

SECTIONAL VIEW OF THE WESTINGHOUSE EXHIBIT AT THE PANAMA-PACIFIC INTERNATIONAL EXPOSITION.



Partial View of the Westinghouse Exhibit at the Panama-Pacific International Exposition Showing Electric Locomotive on Turntable.

current double unit locomotives used by the Pennsylvania Railroad in hauling its trains in and out of the New York Terminal and was removed from service only for exhibition purposes. Upon its design and record of operation which has recently been published in the technical papers, it was awarded the highest prize.

Mounted on a turntable that rotates once every 2½ minutes it has a majestic dignity that never fails to catch the attention of the visitor.

Another prize winning exhibit was that of the well-known HL control system for electric railways which was awarded the Gold Medal. This system is very clearly demonstrated by means of a group mounted on a rack with all parts in full view, connected to two 27-½ kw., 600-volt "Baby" light-weight motors, themselves of particular interest, weighing only 1,680 pounds.

In order to demonstrate the high contact pressure in the switches used in HL and other forms of Westinghouse unit switch control, one of them is shown, with the side cut away to give a clear view of all the working parts, mounted on a rack and arranged with weights attached to the moving jaws of the switch. It is shown by this arrangement that the spring pressure against which the switch closes and which is available for opening the switch is 65 pounds, and that in addition to closing against this spring pressure, the switch exerts an actual contact pressure of more than 110 pounds.

To illustrate the application of PK type of control, two racks, each containing two motors and an equipment applied to a drum controller are shown, the two being connected together through a train line so they can be operated from one master controller Each rack represents one car and by operating the master controller, the action of the control and motor equipments in a two-car train can be fully observed. The Jury awarded to this type of control, the Silver Medal.

Distributed around the base of the locomotive are a number of A. C. and D. C. railway motors of various types and capacities, and it is of interest to note that the Westinghouse Electric and Manufacturing Company was also awarded the Gold Medal on its line of A. C. and D. C. railway motors, also its line of A. C. and D. C. generators.

Among the more interesting of the motors shown may be mentioned the pressed steel motor, 36 kw., weighing 2,110 pounds; the newly developed 5,000-volt direct current motor which has been in successful operation on this and even higher potentials, and the No. 412-A, single-phase, 25-cycle, 220 horsepower used in the Philadelphia-Paoli electrification of the Pennsylvania Railroad which has just been put into service.

There is displayed around the space, a complete line of parts entering into motor construction, such as brush holders; armature coils; field coils; sections of which are cut out showing the strap winding used; housing cut open to show the waste and oil gauging chambers; field coil springs and shields to prevent chafing, pressed steel gear cases as well as insulating cloths, varnishes and compounds used in the manufacture of this and other apparatus.

Following out the educational idea of the Exposition, there is a very practical exhibit of armature winding that always attracts those interested in electrical matters, consisting of a No. 306 armature with various sections at different stages of winding from the slot to the completed winding, permitting an inspection to be made of the method of winding, insulating details, building up of coil supports, the extra insulating strips whenever the coils cross to eliminate chafing, the U-shaped pieces where coil leaves the slot, and various other insulating details employed in the production of Westinghouse motors. By carefully examining this armature one can secure an excellent idea of the construction of modern railway apparatus.

Personal

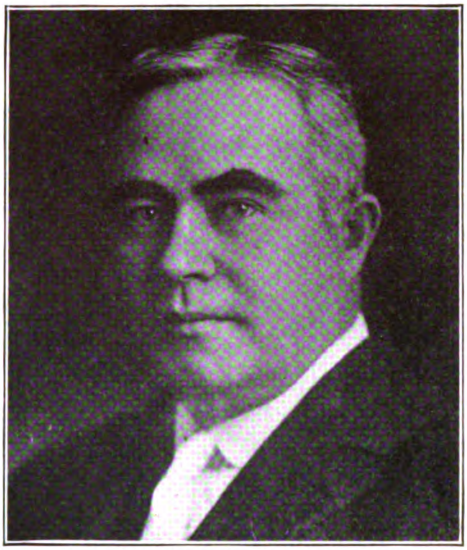
Frank W. Robinson.

FRANK W. ROBINSON, who was recently appointed traffic manager of the Oregon-Washington Railroad and Navigation Company, was born at Cherryville, Kan., on May 22, 1874. He entered railway service on April 1, 1889, and until September, 1899, was employed in the passenger and freight accounting departments of the Union Pacific. From September, 1899, to January 1, 1906, he was in the freight traffic department of that road at Omaha, Neb.; from January 1, 1906, to January 1, 1910, he was chief clerk to the director of traffic of the Union Pacific-Southern Pacific System at Chicago; from January 1 to August 1, 1910, assistant general freight agent of the Oregon-Washington Railroad and Navigation Company at Portland, Ore.; from August 1, 1910, to May 15, 1912, general freight agent of the same road; from May 15, 1912, to February 20, 1913, assistant to director of traffic of the Union Pacific-Southern Pacific System, and from February, 1913, to November 1, 1915, assistant traffic manager of the Oregon-Washington Railroad and Navigation Company.

F. W. ROBINSON.

Frederick J. Townsend.

FREDERICK J. TOWNSEND, the new president of the Traffic Club of Pittsburgh, entered railway service 1879, since which he has been consecutively to 1889, freight clerk Cleveland, Tuscarawas Valley and Wheeling Railway, one year freight clerk and chief clerk Empire Line, one year same positions with Lake Shore and Michigan Southern Railway, and in general freight office Cleveland, Lorain and Wheeling Railroad, 1889 to March, 1893, general traffic agent same road; March 20, 1893, to February 1, 1897, assistant general freight agent of Wheeling and Lake Erie Railroad; February 1, 1897, to August 13, 1899, assistant general freight and passenger agent, and August 13 to November 1, 1899, general freight and passenger agent same road; November 1, 1899, to date, traffic manager McKeesport Connecting Railroad, Benwood and Wheeling Connecting Railway and Lake Terminal Railroad; is also traffic manager National Tube Company and the Shelby Steel Tube Company.



FREDERICK J. TOWNSEND.

J. H. Prior.

J. H. PRIOR has been appointed chief engineer of the Illinois Public Utilities Commission, with headquarters at Springfield, Illinois.

J. H. PRIOR.

Mr. Prior has been in the service of the Illinois Public Utilities Commission for about one year, as assistant chief engineer.

He was educated at the Armour Institute of Technology and the University of Chicago. He was formerly assistant engineer in the service of Ralph Modjeska, civil engineer, and he was engineer of design of the Chicago, Milwaukee and St. Paul Railway from 1905 to 1914, in charge of the design of the heavy track elevation work executed by that company in the cities of Chicago, Illinois; Evanston, Illinois; Milwaukee, Wisconsin, and Minneapolis, Minnesota, during those years. He made some of the first valuations of railroad structures required by State regulatory and taxing bodies. He is a member of the American Railway Engineering Association, The American Economic Association, The American Society of Civil Engineers, and the City Planning Committee of the City Club of Chicago.

The Illinois Commission, which Mr. Prior will serve, has the broadest jurisdiction and powers. It is charged with the regulation, not only of steam and electric railways, gas and electric plants, but with the supervision of telephone companies, heating plants, warehouses, waterworks, wharfingers, and steamboat lines, except such utilities as are municipally owned.

The organization of the engineering department of the Commission has been proceeding during the past year until the Commission has a staff of nearly thirty engineers engaged in appraisal work, in service inspection, safety appliance inspection, and grade separation work.

Mr. Prior has been discharging the duties of chief engineer for the past seven months, pending his appointment.

Frederick K. Bennett.

FREDERICK KNIGHT BENNETT recently appointed valuation engineer of the Minneapolis and St. Louis Railroad Company with office at Mineapolis, Minn., entered railroad service with the Lehigh Valley Railroad as rodman in the spring of 1895 and was in continuous service with this company until March, 1909, as assistant engineer on maintenance, assistant engineer engineering department, assistant engineer charge office and accounts, supervisor of tracks and division engineer; March, 1909, until June 1911, engineer charge reconstruction Missouri Pacific Railway; June, 1911, to June, 1912, assistant engineer with engineer maintenance of way Missouri Pacific at Kansas City; June, 1912, to June, 1913, assistant engineer with chief engineer Missouri Pacific at St. Louis, Mo. June, 1913, to June, 1914, division engineer Missouri, Kansas and Texas Railway. June, 1914, to March, 1915, assistant engineer valuation Great Northern Railway at St. Paul and Spokane, Wash. March, 1915, to September 1, 1915, division supervisor of Minneapolis and St. Louis eastern division, present appointment taking effect September 1st.

FREDERICK K. BENNETT.

Edgar Yungman.

EDGAR Yungman, Division Passenger Agent of the Pennsylvania Railroad, at Pittsburgh, has been appointed Assistant General Passenger Agent of the Company, with headquarters at Broad Street Station, Philadelphia, effective October 1, 1915.

Mr. Yungman was born at Tamaqua, Schuylkill County, Pennsylvania, August 24th, 1867. He was reared in Camden, New Jersey, where he received his education through the public schools.

On August 14th, 1883, Mr. Yungman entered the service of the Pennsylvania Railroad as a clerk in the Passenger Department at Philadelphia. After serving in various positions throughout the Passenger Department, he was made Passenger Agent of the Baltimore District at Baltimore, Md., on October 1st, 1902. In 1903 he was promoted to the Southeastern District at Washington, D. C., and in the same year was advanced to Chief Clerk of the Passenger Department at Broad Street Station, Philadelphia.

In December, 1907, Mr. Yungman was made Division Ticket Agent of the Philadelphia and Erie Division and the Northern Central Railway at Williamsport, Pennsylvania. On April 1st, 1910, he was transferred to Pittsburgh, Pa., as

Division Ticket Agent of the Western Pennsylvania and Allegheny Divisions.

In the reorganization of the Passenger Department of the Pennsylvania Railroad East of Pittsburgh and Erie on March 1st, 1913, Mr. Yungman was promoted to Division Passenger Agent at Pittsburgh, Pa.

F. S. Davis.

THE New Haven Railroad Company has appointed F. S. Davis general Western freight and passenger agent to represent the company, the Central New England Railway Company and the New England Steamship Company, with headquarters in the Oliver Building, Pittsburgh, Pa.

This appointment is another step in the policy of the New Haven Railroad and affiliated lines to do all in their power to further the interests of New England trade. Mr. Davis is thoroughly acquainted with New England trade and traffic conditions, having served recently as chief of the Tariff Bureau in charge of the joint Tariff Bureau of the New York, New Haven and Hartford, the Boston and Maine, the Maine Central, the New England Steamship Company and the Central New England Railway Company.

Mr. Davis began his railroad career in 1887 as a checker in the Fitchburg Railroad freight house at Warren Bridge, Boston. From that year until April 1, 1896, he served successively as clerk in the local freight office at Warren Bridge, Boston; soliciting freight agent, attached to the general freight office, and eastbound freight agent for the Fitchburg Railroad, with office at the Chamber of Commerce, Boston. From April 1, 1896, to June 30, 1900, he was division freight agent for the Fitchburg Railroad at Troy, N. Y., continuing in the same position for the Boston and Maine when that company leased the Fitchburg. Subsequently he was promoted to the position of assistant general freight agent for the Boston and Maine, with offices at Troy, and on May 1, 1910, was appointed chief of the Tariff Bureau in charge of the Joint Tariff Bureau of the New England Lines. He assumed his present duties as general Western freight and passenger agent on September 1.

F. S. DAVIS.

John J. Ekin.

JOHN J. EKIN, who was recently appointed general auditor of the Baltimore and Ohio System, has had a wide experience in railroading. Starting at the very bottom as a warehouse clerk 20 years ago on the old Pittsburgh and Western—now part of the Baltimore and Ohio lines—he entered upon a schooling of freight accountancy that laid the foundation of his successful rise in the accounting department, which ably fits him for the responsible position of general auditor.

JOHN J. EKIN.

The new official was born in Whitestown, Pa., June 8, 1873, and at the age of 22 entered railroad employ. Following several years' experience in the yard and freight offices at Ellwood City, Pa., he was transfered to the auditor's office of the Pittsburgh and Western, at Pittsburgh, August 11, 1896. On February 1, 1901, he was made general bookkeeper, being advanced to chief clerk to the auditor July 1, 1901.

In March, 1902, Mr. Ekin was first established at the headquarters of the Baltimore and Ohio, in Baltimore, as bookkeeper and general clerk in the office of the auditor of subsidiary lines, and was promoted to chief clerk in the same department in January, 1904. Retaining this post for four years, he next became auditor, superintendent of the relief department and secretary to the board of managers of the Washington Terminal Company.

At the time the Government instituted the railroad valuation campaign, Mr. Ekin was appointed secretary of the valuation committee of the Baltimore and Ohio, and December 1, 1913, was given the important charge of general accountant of the same company.

Theodore F. Brown.

THEODORE F. BROWN, assistant auditor of the Star Union Line at Pittsburgh, Pa., has been placed upon the retired list after having been in the service of the Pennsylvania Railroad for fifty-two years and nine months.

Mr. Brown was born at West Chester, Pa., on August 29, 1845. After receiving his education in the public schools, he began railroad work, in 1860, as rodman in the engineer corps engaged in locating the Oxford and Peach Bottom Railroad. Shortly after the outbreak of the Civil War he entered the Engineers' Department of the United States Military Railroads in Virginia, serving until the latter part of 1862.

In November, 1862, Mr. Brown became rodman on the work of constructing the Pittsburgh and Steubenville Railroad, now a part of the main line of the Pittsburgh, Cincinnati, Chicago and St. Louis Railway. Upon the completion of this work, in 1865, he became chief clerk, accounting department, Oil Creek and Allegheny River Railroad, later the Pittsburgh, Titusville and Buffalo Railway. He was promoted to auditor in 1874. In 1878 he was made chief clerk, accounting department, Allegheny Valley Railroad, which later became the Allegheny Valley Railway.

On September 1, 1900, the accounts of the Allegheny Valley Railway were merged with those of the Pennsylvania Railroad, and Mr. Brown was appointed assistant auditor of the Star Union Line. He continued to serve the company in that position until his retirement from active duty.

THEODORE F. BROWN.

Financial

Net Results for July.

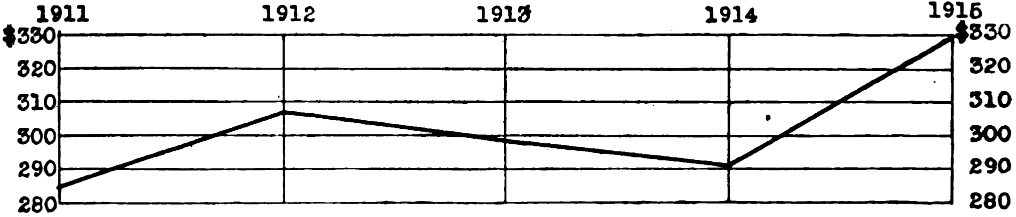
ACCORDING to the latest report of the Bureau of Railway economics at Washington, net operating income of the railways of the United States for July increased $39 per mile, or 13.3 per cent, as compared with July, 1914. This increase was due in the main to reductions in expenses, which have been effected in all parts of the country. In July, 1914, net operating income per mile was 3.1 per cent less than in July, 1913.

Total operating revenues amounted to $258,526,363, an increase from 1914 of $2,567,724. Operating expenses were $171,526,861, a decrease of $6,990,534. Net operating revenue amounted to $86,999,502, an increase of $9,558,258. Taxes amounted to $11,574,582, an increase of $217,588. This left $75,377,176 for net operating income, available for rentals, interest on bonds, appropriations for improvements and new construction, and dividends. Operating revenues per mile of line averaged $1,130, an increase of 0.3 per cent: operating expenses averaged $750, a decrease of 4.6 per cent; net operating revenue per mile averaged $380, an increase of 11.5 per cent, while net operating income per mile was $330, an increase of 13.3 per cent. Taxes per mile increased 1.2 per cent. Railways operating 228,713 miles of line are covered by this summary, or about ninety per cent of the steam railway mileage in the United States.

Operating revenues of the Eastern railways per mile show an increase of 3.8 per cent as compared with July, 1914, operating expenses decreased 3.9 per cent, net operating revenue increased 22.5 per cent, taxes decreased 0.3 per cent, and operating income increased 26.2 per cent.

Operating revenues of the Southern railways per mile decreased 4.5 per cent, operating ex-

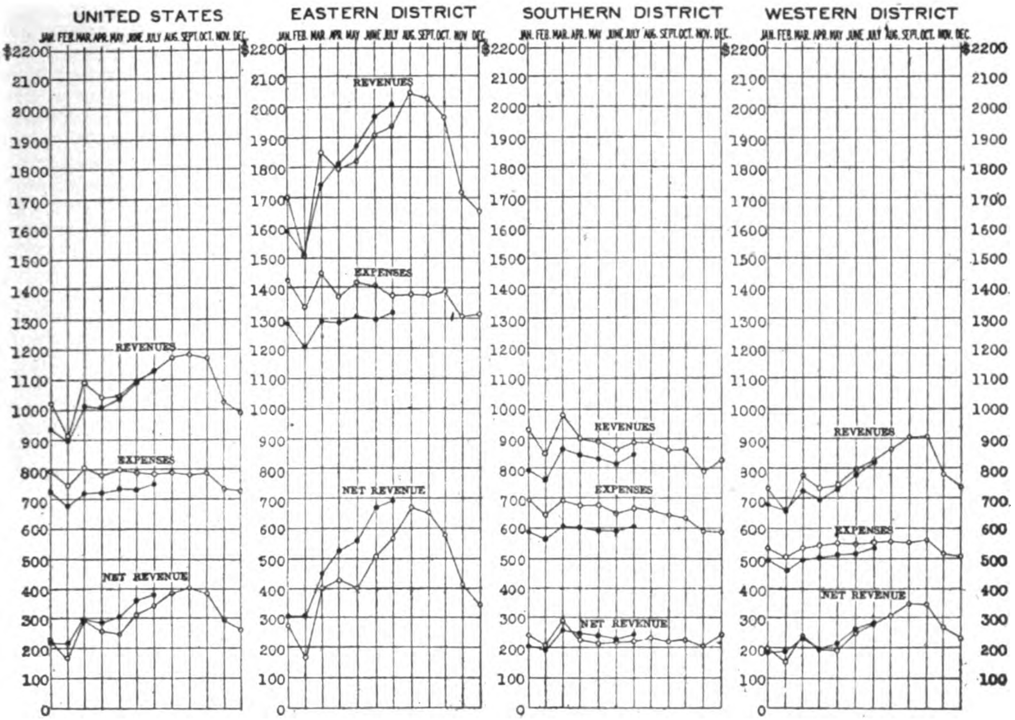
TREND OF OPERATING INCOME PER MILE OF LINE FOR THE MONTH OF JULY



MONTHLY REVENUES AND EXPENSES PER MILE OF LINE

ROADS HAVING ANNUAL OPERATING REVENUES ABOVE $1 000 000

CALENDAR YEAR·
1914 ∘
1915 •



penses decreased 9.2 per cent, net operating revenue increased 9.7 per cent, taxes increased 1.9 per cent, and operating income increased 11.2 per cent.

Operating revenues of the Western railways per mile show a decrease of 1.4 per cent, operating expenses decreased 3.1 per cent, net operating revenue increased 2.1 per cent, taxes increased 2.6 per cent, net operating revenue increased 22.5 per cent.

July net operating income per mile was 13.3 per cent greater in 1915 than in 1914, 10.4 per cent greater than in 1913, 7.2 per cent greater than in 1912, and 15.8 per cent greater than in 1911.

July's Railway Gross Best in Nearly Two Years.

JULY opened the new fiscal year with a gain in gross revenues for all United States railways over the year before, which was the most substantial reported in almost two years. Figures for the month have been compiled by the Bureau of Railway News and Statistics, Chicago, covering the entire mileage of slightly over 256,000 miles; these are based upon the official figures of the Interstate Commerce Commission, which cover only 228,713 miles, about 90 per cent of the mileage, roads earning under $1,000,000 gross per year being omitted from the official figures.

For the entire mileage the Bureau's computations show gross revenues of $267,764,229, a gain over July, 1914, of $2,578,917. Not since September, 1913, has any month shown an increase as large as this. Continued vigorous curtailment of expenses enabled the managements to pare $7,455,758 from expenses leaving for the month's net revenues $89,610,032, a gain of $10,034,675. This gain in net was smaller than those reported in February, May and June, but larger than that for any other month in the last fiscal year.

Taxes, which had shown a small contraction in every month since January (though this contraction was less proportionately than the loss in earnings), again took the upward course in July with an increase of $211,685, absorbing over 8 per cent of the improvement in gross, and leaving a gain in net income of $9,822,990.

The comparisons follow:

July.	1915.	Increase.
Mileage	256,117	1,079
Gross	$267,764,229	$2,578,917
Expenses	178,154,197	*7,455,758
Net	89,610,032	10,034,675
Taxes	12,035,543	211,685
Income	77,574,489	9,822,990

* Decrease.

Although July's gain in revenues thus reflects an improved tendency toward business recovery it is important to remember that the increases shown are from exceedingly poor figures a year ago. The gain in gross of 2½ millions is against a loss a year ago of 10½ millions, so that, compared with 1913, July is down about 8 millions.

The saving in expenses moreover, has been made by means of cutting out all items which could be foregone without impairing safety and efficiency. How well safety has been not only preserved but advanced has been shown in recent figures published by this Bureau—yet much of this saving in expenses represents merely deferred spending, which must be done later to maintain the transportation machine.

July's expenses are about $17,000,000 less than those for July, 1913.

How efficiently United States railways have been handled in the face of falling revenues is shown strikingly by the figures for the current calendar year. In the seven months, January 1 to July 31, gross fell off $37,881,000 from the same months in 1914. Yet expenses were held down to $95,910,000 beneath a year ago with a resulting gain in net revenue of $58,029,000.

Railroad Receiverships.

A SIXTH of the mileage of all the railroads in the United States is being operated by receivers, and two thirds of all the roads in receivers' hands are in the Southwest. Of the mileage in receivers' hands, almost one half has been so placed since the beginning of the year. On January 1, 1915, 21,048 miles of road, with a capitalization of $1,265,328,528 was in receivership, and since that date 20,940 miles, with a capitalization of $1,298,673,650 has been added to the mortality list, making a total of 41,988 miles, with $788,616,423 outstanding stock and $1,475,385,755 funded debt, a total capitalization of $2,264,002,178. It is said that one of the main reasons for the heavy mortality in the Southwest is that the railroads in that section have too large a proportion of their capital securities in the form of interest-bearing obligations.

Railroad Gross Earnings for September.

FIGURES published by the Commercial and Financial Chronicle show an encouraging increase in the gross returns of forty-seven railroads for the month of September. While the improvement is only $700,000, or less than one per cent, as compared with returns for September of a year ago, it is at least gratifying to find, as the Chronicle points out, that a turn in the downward movement has at last been reached. While a few of the roads still record decreases, the greater number are able to show better earnings than a year ago. For the first nine months of the current calendar year, the loss in gross earnings as compared with the results for a like period in 1914, aggregate $40,700,000, or more than 6½ per cent..

Reverting again to the results for September, it should be understood that the comparison is made with the period last year when revenues had already begun to shrink in a very considerable degree and it is important that this fact should not be overlooked, as otherwise undue significance would be given to the small improvement recorded. The September, 1914, loss over the preceding year was, according to the Chronicle's yearly statement, over $5,500,000. Prior to this year yearly September compilations showed moderate increases for a considerable number of years back. In September, 1913, the increase was $3,617,644, or 4.64 per cent; in September, 1912, it was $4,988,471, or 7.09 per cent; in 1911, $2,302,158, or 3.63 per cent; and in 1910, $2,487,898, or 3.81 per cent. In September, 1909, the improvement was of larger proportions, the gain amounting to $6,613,195, or 11.91 per cent. But that followed a loss in 1908, the falling off then by our yearly statement having been $3,986,202 or 5.78 per cent. Up to 1908 the September record of earnings was one of continuous improvement.

Operation

Long and Short Trains.

AMERICAN Industries for September comments on the fact that petty nagging of the railroads of the United States apparently is continuing unabated. Scarcely a month passes that some new form of railroad baiting does not come to light. Certainly it may be said with reasonable accuracy that scarcely a State Legislature meets that some legislation is not proposed that would hamper railroads if enacted. For several years so-called "full crew" laws have been the pet method of labor agitators for harassing the carriers. Lately, however, this particular kind of law seems to have fallen into popular disfavor.

The people of Missouri administered a severe rebuke to its proponents at the last direct election held in that state. On referendum the law was decisively defeated, but observe the resources of labor unions in their efforts to extract more wages for less work from the already overburdened railroads.

In Illinois a law has been introduced to limit the length of trains to fifty cars. This proposal like the "full crew" laws is urged in the interest of safety. Railroads, it is well known, find it profitable to run freight trains frequently exceeding in length a fifty-car maximum. Under the new law, if passed, this would be impossible. Observe the effect. A train formerly of fifty-five cars in length would become two trains of twenty-five and thirty cars respectively. Two engines would then be required to do the work formerly performed by one. Two engineers and two firemen would be employed doing the work formerly done by one, and corresponding increases would be made in other departments of the train crew. Two jobs would grow where only one grew before.

This, of course, is in the interest of public safety. Perish the thought that any commercial desire to increase the number of railroad employes could have inspired this proposed law. In fact a postal card has been circulated showing exactly the number of persons killed on railroads in the United States yearly, from which the conclusion is drawn in some mysterious manner that the shortening of trains would be conducive to greater safety.

Facts, however, are contrary to this conclusion. Of the 594,359 accidents on American railroads in one year 31,851 resulted fatally. Fifty-one per cent of those killed were trespassers who had no right on railroad property, twelve per cent killed were travelers on highways, three per cent were passengers and only thirty per cent were railroad employes.

It cannot be shown that any of these accidents were due to the length of trains. Contrary to reducing the accident risk by shortening trains it would be increased. To shorten the length of trains means to increase the number of such trains, and an increase in number means a corresponding increase in traffic with the attendant increase of accident risk.

The proposed Illinois law is merely an example of labor union influence in state legislatures, which is constantly seeking to hamper large corporations and industrial enterprises.

Latest Report on Car Situation.

THE Committee on Relations between Railroads of the American Railway Association has published a summary of freight car surpluses and shortages for October 1, 1915, which shows the total number of idle cars to have been 88,061 compared with 191,309 on September 1, 1915, and 133,382 on October 1, 1914. In other words, there has been an improvement so marked as to indicate a definite increase in traffic. According to the report the decrease has been general in character and has been felt more or less in all sections of the country. The total shortage on October first, according to the same report, amounted to 9,762 cars which compares with 6,300 cars on September 1, 1915 and 2,355 on October 1, 1914. The present drift would indicate that unless shipping interests co-operate in the closest manner with the railways, a shortage of very serious proportions will develop in certain sections of the country before the winter is over.

Repairing Flood Damage.

LAST year the railroads of the middle west set a striking example of their efficiency, and ability to handle unusual operating problems, when in the course of a marvelously few days days, they succeeded in temporarily repairing the great damage done to their lines by extensive floods, schedules being interfered with for so short a time, as to place no great inconveniences upon business or travel. More recently the serious floods in upper New York State and Pennsylvania gave the New York Central railroad between Buffalo and Chicago, serious and unusual operating problems which had to be promptly met.

The Erie flood, the greatest that section of the country has ever known, cut through the fine four-track road-bed to a depth of 50 feet. Telegraph and telephone poles were uprooted and in many instances fell acoss the tracks. There was a cave-in here and a wash-out there. High bridges were dropped to the ground. The best that science has provided for quick transportation, safety, comfort and convenience had been destroyed by nature in a few hours.

Repair gangs were at work in jig-time. Linemen were mending the wires and restoring the telephone and telegraph poles. Carloads of slag and sand and dirt were on their way in a jiffy.

Effect of Erie Flood on New York Central Track.

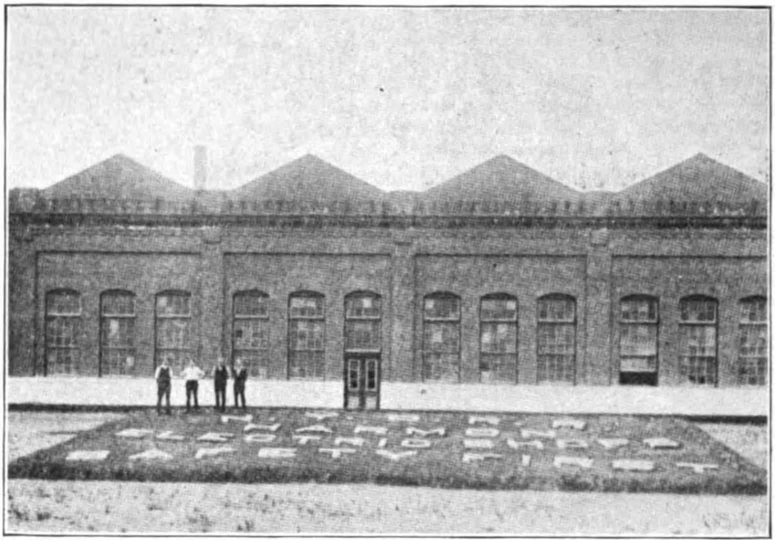
Plate tracks, ties and rails were loaded on cars and hurried to the scene of the flood. Officials raced to Erie on speeders—the little gasoline motorcycles that run on the rails.

Eight hours after the flood had acted its role of nature's wrecking crew at Erie, the New York Central had the four-track road open again and had made it safe for the transit of the immense locomotives and heavy steel equipment which the lines operate. The last train that went through before the tracks were several feet under water was about two hours late and the ones that were held up until American railway science and ingenuity had performed remedial miracles were only about 12 hours late. Within 24 hours all trains were running on schedule time. It is such disasters that come unexpectedly and cost enormous amounts that make railroad investments hazardous and entitle them to more than the average dividend. The Dayton flood, a few years ago, cost the railroads of central and southern Ohio and Indiana millions of dollars, and in some instances prevented the payment of dividends for several years.

The Spirit of Safety First.

ACCORDING to a statement received from the New York Central Lines, the spirit of "Safety First" is becoming more in evidence in the round houses, shops and yards of this Company. The men employed at these busy centers of the System are apparently trying to outdo each other in making their respective plants not only safe but attractive. The general appearance of neatness, cleanliness and order that prevails, clearly shows the result of the safety work of this Road. Bulletins and other printed warnings and cautionary instructions are emphasized by large "Safety First' 'mottoes artistically formed on the ground and made either of flowers or white stone. These usually are set in such position as to not only be plainly visible to all employes, but also to passengers on passing trains. At a number of the shops, the employes have furnished an American flag which is raised on a flag pole in a conspicuous place.

Each foreman is most particular to require that the grounds outside the roundhouses and shops, as well as the floors inside, shall be free from refuse or obstructions which are not only un-



Outside of the Shops of the New York Central Lines at Harmon, N. Y.

sightly, but which might cause injury by some one stumbling and falling over them.

Safety Rules and regulations governing unsafe practices are all right and proper, but they lose their effect if the surroundings in which the men are required to work are kept in a condition of chaos and confusion.

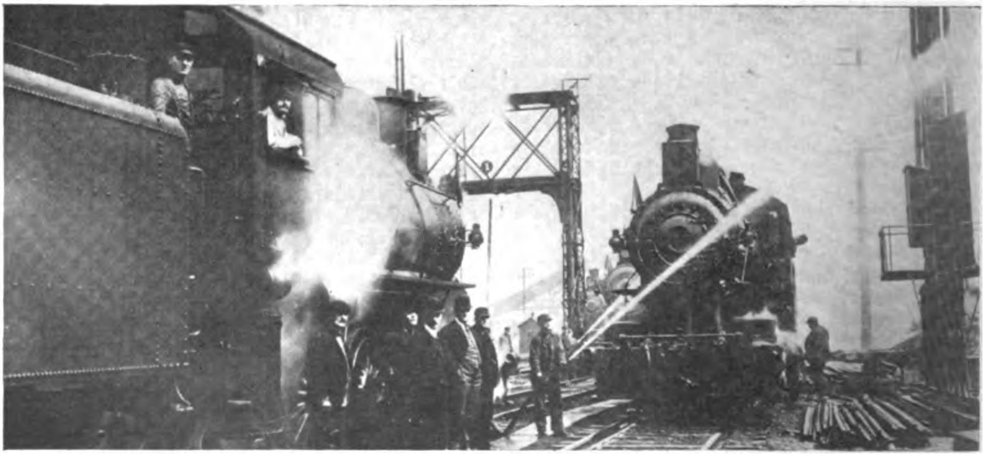
Safety work, however, must not, and ordinarily does not, stop here. Strict enforcement of all Safety Rules is at all times necessary. The foreman, his assistants, members of the Safety Committees and all employes must be ever alert to detect and immediately correct every unsafe condition and practice that arises, as this is most essential in the everlasting work of preventing injuries.

Railroad Insurance.

MANY large railroads find that it results both in economy and efficiency to operate their own insurance funds and fire departments. The insurance fund of the Pennsylvania System for example, is greater than the net surplus of the third largest fire insurance company in the country, and this does not more than half describe the extent of the insurance business this Company does for itself through its own insurance fund, which now assumes a fire and marine risk of more than $400,000,000.

The development of this Insurance Fund is part of the job of running a railroad efficiently and economically. If the Company did not have its own Insurance Fund, it would have to pay outside companies more than twice the average premium it pays its own Fund.

The Insurance Fund of the Pennsylvania Railroad is not a huge sum of money which has been set aside by the Railroad. As a matter of fact, it was started in 1879 with something over $500,000. By careful management and by developing a system of inspection and fire protection, the Company has cut its fire losses to a minimum, and as a result the Fund has grown to more than



Locomotives as Fire Engines Showing How the Pennsylvania Railroad Has Equipped Yar Locomotives With Special Fire Fighting apparatus.

$9,000,000 despite the fact that premium rates are less than half the rates usually charged by insurance companies for railroad insurance. The Fund has grown with the Railroad.

This Company has developed an extensive system of fire fighting, and at the same time the inspection of all property of the Railroad has been constantly increased. Ten inspectors, representatives of the Insurance Department, devote their entire time to going over the Railroad seeing to it that no practices are permitted and that no buildings are so constructed that the fire hazard exceeds the minimum. The combined results of this inspection and protection against fire is that fewer fires occur, and railway employes now extinguish many fires which otherwise probably would gain headway and cause heavy losses.

Actual figures show how the Railroad and its men have progressed in fire fighting. In 1908 the Company's employes extinguished 274 fires out of a total of 1397 which occurred on railroad property. In 1909, out of 929 fires, the Railroad's own men put out 321. In 1910 they extinguished 379; in 1913, 413 fires—more than half of the total number of fires; and in 1914, 427 fires—more than three-quarters of all the fires.

The average annual fire loss on the Pennsylvania System is approximately $350,000, on an average valuation of $284,000,000, or 12½ cents per $100, of risk.

Arresting Trespassers.

TRESPASSING on the property of the Long Island Railroad or failure to respect grade-crossing laws, have resulted in so many casualties that the company has recently felt forced to adopt drastic measures in an effort to protect these careless persons against themselves. J. A. McCrea, General Manager of the Long Island Railroad in commenting upon the recent arrest and punishment of several persons who wilfully disregarded the law and at the same time jeopardized their lives by passing over railroad tracks on Long Island at crossings while the gates were down, had the following to say:

"It is indeed a deplorable fact that every day there are so many flagrant violations of the law which aims to safeguard the public from accident at grade crossings. In the past week more than forty individuals were arrested for creeping underneath or prying apart crossing gates that were closed or lowered because of approaching trains. Of those arrested by our police department and subsequently arraigned before magistrates in different localities, thirty-four pleaded guilty and were fined.

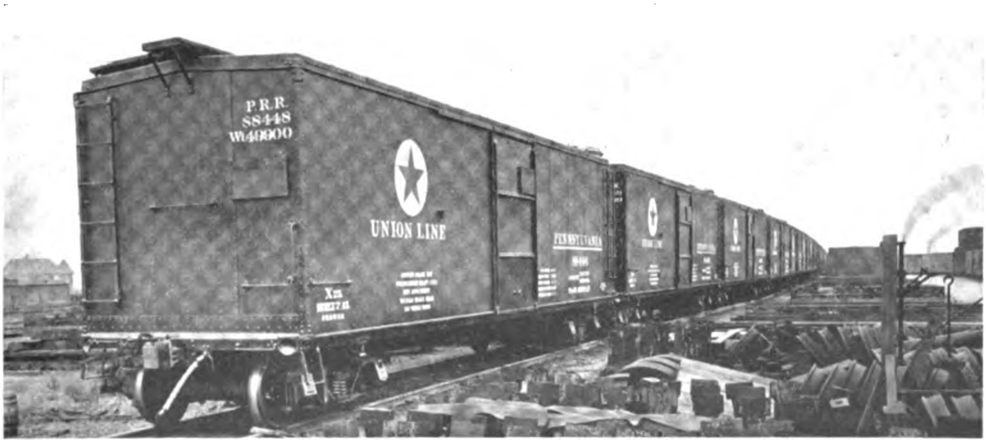
"We want to make it plain, however, that in making these arrests, the Long Island Railroad is not acting arbitrarily. We are co-operating with the city authorities.

"In addition to the presence of watchmen and patrolmen at crossings to see that drivers and pedestrians cross the tracks in safety, warning signs containing the exact wording of the city ordinance are posted on the ends of gates and in conspicuous places in the immediate vicinity of each crossing. The attention of all persons who attempt to cross the tracks when the gates are down is called to the danger of accident and the consequences of violating the law, by our watchmen and police officers, and arrests are made only in cases where offenders have been previously warned.

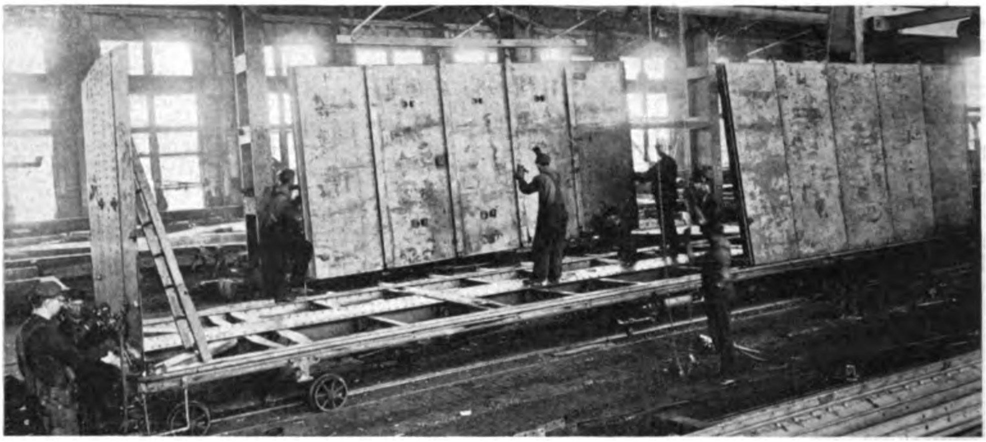
Mechanical

Steel Freight Cars.

THE employment of steel in the construction of railway equipment is rapidly superseding wood in both the passenger and freight departments. In fact all new passenger equipment is now being made of steel, the use of wood being relegated to window casings and other unimportant details where the use of metal has not yet been found practicable. In the construction of the steel freight car, wood has been entirely eliminated and it will not be many years before the wooden box car will be a thing of the



PART OF A DAY'S OUTPUT OF STEEL BOX CARS BY THE PENNSYLVANIA RAILROAD'S STEEL CAR SHOP AT ALTOONA, PA.



Erecting the Sides of a Steel Box Car. The Sides, Ends and Roofs of These Cars are All Built Separately of Steel Plates and Then Placed in Position by Sections.

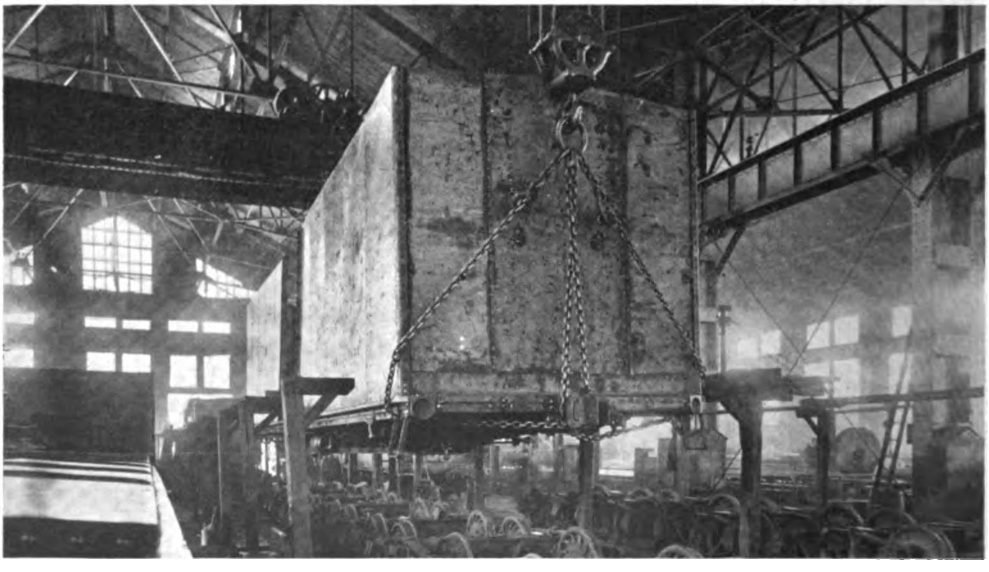
past. While the first cost is heavier in the construction of steel equipment, its greater durability combined with a much larger element of safety, gives it an advantage over wooden equipment which must eventually drive the latter entirely from the market.

The Pennsylvania Railroad, noted for its foresight in matters of this character, announced one year ago that it was about to add to its regular equipment, the all-steel box car. As an indication of the rapidity with which this road follows a policy once established, it is interesting to note that to-day this great system has in operation more than 2,000 all-steel box cars and that others are being turned out by the railway shops at Altoona, Pa., at the rate of one every fifty-five minutes. With the completion within the year of those now authorized to be built at Altoona and by outside companies, the railroad will have 6,500 steel box cars, representing an investment of about $9,000,000.

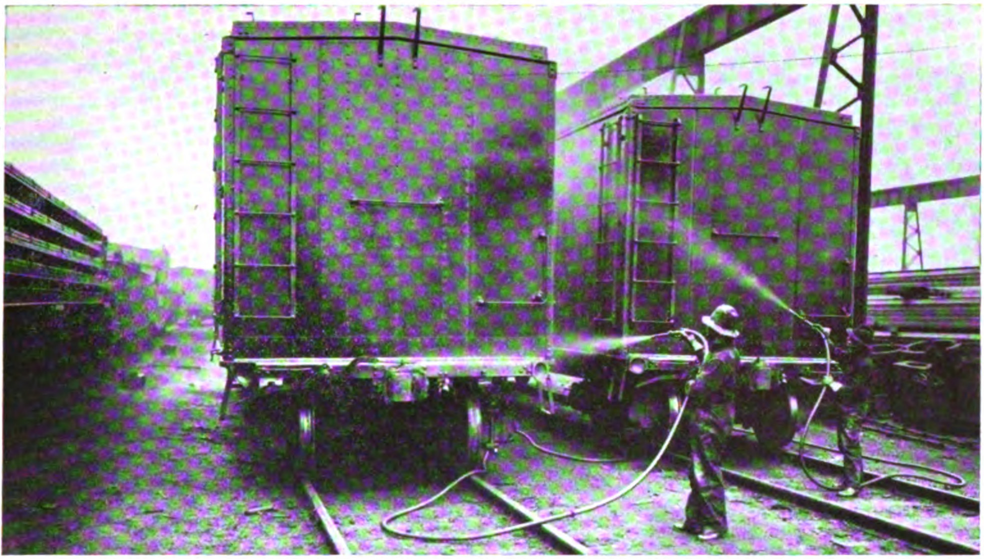
The first steel box car cost the company $1,500 to build. Experience has reduced this cost materially; it is now about $1,300, which is still considerably above the cost of a wooden car, but this railroad believes that steel box cars will, to a large extent, justify their higher first cost by their added durability, greater strength and longer life.

A steel box car from the trucks up—that is, the underframe, body and roof—is built practically altogether of riveted steel plates.

These plates are first moved by overhead



Lowering Body of Steel Box Car on its Trucks. In This Picture the Underframe, Sides and Ends of the Car are Completed but the Roof and Doors Have Not Yet Been Fitted. It is at This Stage in its Construction That the Steel Box Car is Placed Upon its Regular Trucks.



THE PENNSYLVANIA RAILROAD EMPLOYS THE SPRAYING METHOD IN PAINTING THEIR NEW STEEL EQUIPMENT. THE PAINT IS VAPORIZED AND SPREAD ON BY COMPRESSED AIR AND THIS METHOD OF PAINTING IS THE FASTEST AND MOST ECONOMICAL YET DEVISED.

cranes to the shearing machines, of which there are several of different sizes. Suspended in chains, so that they may be swung and turned with the least possible expenditure of human effort, the plates are seized by gangs of men, who guide them between the blades of the shears, where they are cut into proper shapes. The largest of the shears can make a ten foot cut in a quarter inch steel plate about as easily as a tailer snips three inches from a piece of cloth.

Next the rivet holes are punched. On the longest pieces this is done on the "multiple punch," a wonderful machine which handles four pieces of work at once and can make as many as 160 holes through a half-inch steel plate on every movement.

After the punching, if the plates are not intended for parts of the car which are perfectly flat—that is, if the edges are to be turned for riveting, or if they are to be bent into the "U" forms used in giving rigidity to the underframe—they next go to the forming presses. These are the most powerful machines in the Altoona shops. The largest of them is capable of exerting nearly 4,000,000 pounds' pressure.

A steel box car in the course of construction occupies eight positions on the erecting tracks and goes through 27 classified operations, each of which, of course, embraces the doing of a multitude of things. The 5,100 rivets which are beaten into place with the pneumatic tools hold together 129 pressed steel parts in each car. The car, with its trucks and equipment complete, weighs 50,000 pounds and has a carrying capacity of double that.

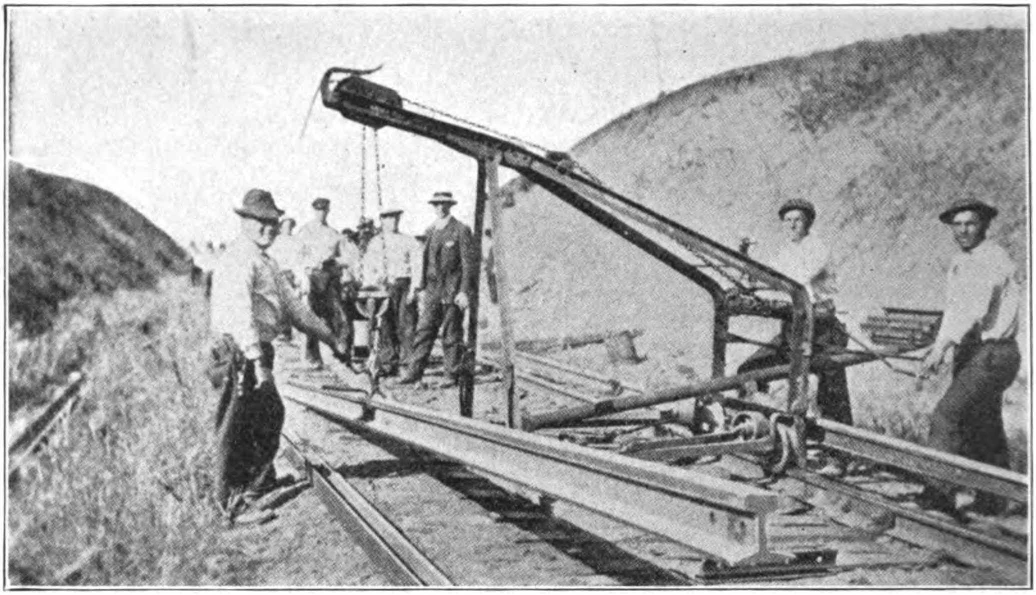
In building steel cars, the Pennsylvania Railroad has followed its policy of making steel the standard form of construction for all its cars. This road was the first to adopt steel passenger cars, and now owns more than any other railroad in the world.

Economies of the Track-Laying Machines.

TRACK laying machines are being used by a number of roads with extremely satisfactory results as is indicated by the following statement of W. O. Rutherford, Roadmaster of the Great Western Railway.

During the months of May and June of this year we were engaged in relaying 21 miles of new 85-pound rail from Mino to Des Moines, using for this work one of the Madden track laying machines to set in the rail, which takes the place of 14 men with rail tongs. It takes five men to operate this machine properly and by the use of it we save the labor of nine men on what is known as the tong gang. In addition to this saving in labor we found that rail can be relaid cheaper and much easier with this machine than it can by using the extra nine men to set in the rail by hand as the use of the machine does not tire the men out like lugging the rail around by hand and they will hurry the machine all day. It is also much safer as there is not so much danger of getting men hurt by setting the rail in with the machine as there is by setting it in by hand. This is one of the reasons that it is faster.

We used 63 Italians in our steel gang, two flagmen, one water man, and one man grinding tools, leaving 59 men actually engaged in track laying, which is about as small a gang as can be used to good advantage to get results from the use of this machine. With this gang we averaged from 6,500 to 8,000 lineal feet of rail relaid per day. On June 3d, with 63 men, 630 hours, we relaid 10,016 lineal feet of rail; June 4th, 62 men, 620 hours, 8,514 lineal feet of rail; June 6th, 62 men, 466 hours, 6,497 lineal feet of rail; June 7th, 62 men, 530 hours, 6,468 lineal feet of rail, etc. A larger per cent of the rail we relaid this year was on curves where tie plates were used, which accounts for some of our small averages.



Track-Laying Machine of the Great Western Railway Which Has Developed a Remarkable Economy in This Branch of Railway Operation.

Terminal Improvements

New Terminal Yards at Memphis.

FORREST, the classification yard and engine terminal, six miles east of Memphis, just put in service by Southern Railway, is modern in every respect, and provides ample facilities for handling a great volume of business through the Memphis gateway. The terminal was named in honor of the great Confederate cavalry leader, General Nathan Bedford Forrest.

The yard is about 1¼ miles long and contains 14.7 miles of track. It is arranged in two separate groups, each having a distribution and receiving yard, the combined capacity being 903 cars. Movement from one group of tracks to another is made by a system of double slip switches.

Among the facilities provided at Forrest are a 12 stall round house with a ninety-foot power turntable, of latest type and heaviest capacity, strong enough to accommodate the heaviest class of power now in use, and a modern plant for furnishing coal, water, and sand to locomotives.

The coal handling plant is of reinforced concrete with machinery for mechanically handling and automatically weighing coal issued to locomotives. It is electrically operated and coal dumped from hopper-bottom cars is conveyed to an overhead storage bin of 1,000 tons capacity from which it is dropped to weighing pockets and issued direct to locomotives, the supply given to each locomotive being weighed by subtracting-beam type-registering scales. Ground storage for 7,500 tons has also been provided with machinery for handling coal from cars and into the receiving hopper. In connection with the coal handling plant there is complete machinery for drying, handling and issuing sand to locomotives and the terminal is so arranged that it is possible for a locomotive at one point to receive supplies of fuel, water and sand simultaneously.

There is a machine shop and boiler room for running repairs to locomotives and a shed for the repair of freight cars. A battery of air compressors affords pneumatic service throughout the

General Appearance of the Southern Railway's New Terminal Yard at Memphis, Tenn., Which is About One and One-Half Miles in Length and Contains 14 7/10 Miles of Track.

terminal for testing brakes and the operation of air tools in repair work. In connection with the roundhouse there are a wash room with lockers for employes, a fireproof oil storage house, and a supply storehouse.

There is a commodious two-story yard office with tile roof and the yard has been provided with modern automatic track scales of the heaviest capacity. The whole terminal with its buildings is thoroughly lighted by electricity. Signaling and interlocking facilities for the protection of main line train movements as well as the handling of trains into and out of the yard have been installed at each end.

Modern Coal Pier for Charleston, S. C.

THE Southern Railway has just completed a modern coal pier at Charleston, S. C., through which will be handled coal from Southwest Virginia and from Tennessee and Kentucky mines. These coal terminals have been completed at a cost of $500,000. So far only one unit has been erected, but plans call for additional units as the coal shipping business develops. The building of this coal pier means the fulfillment of plans which the Southern Railway has long had. That its completion at this time is timely is without doubt.

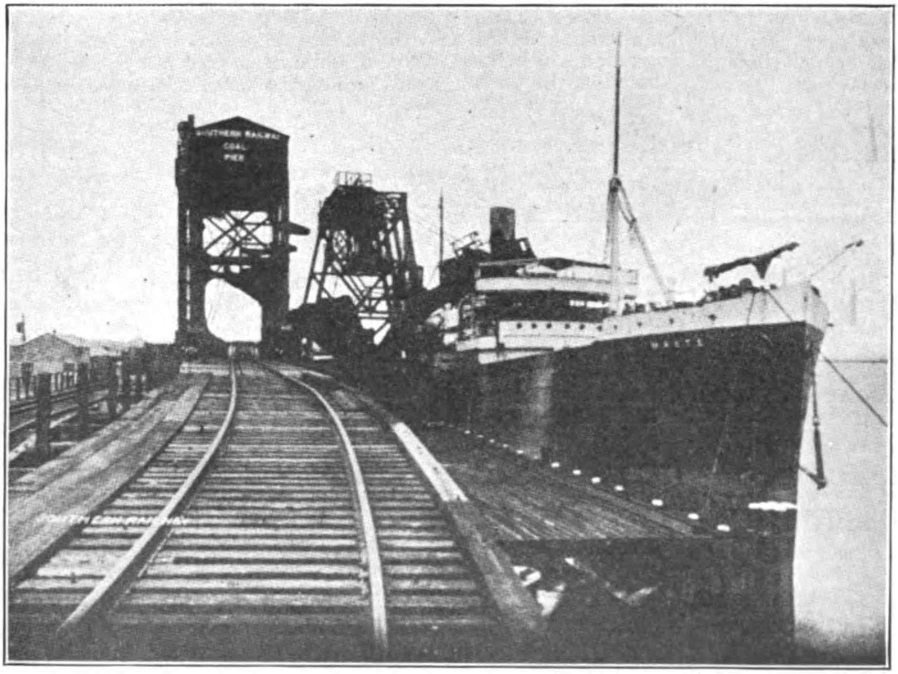
A new rate on coal for export has been made from the Southwest Virginia mines to Charleston which will permit the shipping of it to that place for distribution to steamers along the South Atlantic coast and for export to Europe and South America. At least one large coal mining company in Southwest Virginia has already made arrangements for exporting coal through this terminal and now has representatives in Europe and South America negotiating sales of coke, gas coal, steam coal and by-product oven cooking coal.

The building of this pier illustrates not only one of the new developments in the industrial history of the South, but shows something of the work that is being continually done in that section for industrial and general development. So far as the city of Charleston is concerned, it will add very greatly to its importance as an export point and will undoubtedly greatly promote its growth.

A long trestle, a pier, a huge dumper and a huge loading tower make up the terminals. The distance from mean low water to the top of the dumper is eight-five feet; from the trestle to the same point fifty-five feet. This structure, resting on four hundred-pound rails, weighs 250 tons, but it is easily moved by a powerful motor a distance of 375 feet. Six hundred piles were driven for its foundation and about 1,300 cubic yards of concrete used.

The automatic loading tower weighs about 250 tons and, like the dumper, rests on four hundred-pound rails. It can be moved by a motor for a distance of 460 feet. About 1,200 piles, with forty fender piles, were necessary for its foundation. The top of the tower is about seventy-five feet above mean low water. A great quantity of concrete was used in the foundation work. Its telescopic chute is a new departure in coaling and through its operation much time will be saved, and breaking of coal will be materially lessened.

The slip has been dredged to a depth of thirty feet at mean low water, which gives thirty-five to thirty-seven feet at high tide. The dock is amply long for huge steamships and colliers. The dock is completely equipped with modern devices, the accent being placed throughout on the factor of safety.



SOUTHERN RAILWAY'S NEW COAL PIER AT CHARLESTON, S. C., WHICH IS EXPECTED WILL GREATLY INCREASE THE IMPORTANCE OF THIS CITY AS A COAL PORT.

Alongside the trestle the electric substation has been erected on piles and concrete. The trestle, of the best construction, runs out a distance of 3,062 feet. At the end of the trestle there is a kick-back, which sends empty cars by gravity to the storage track, with room for fifty cars.

New Coal Pier for Baltimore.

AUTHORITY for the erection of a new coal pier in the Curtis Bay terminal of the Baltimore and Ohio railroad at Baltimore, which will cost approximately $1,500,000 and have a capacity of 10,000,000 tons a year, was voted by the directors of the company at a meeting held in New York on September 16. The new pier will be the largest yet built and will provide enlarged facilities for the port of Baltimore which will place the city in the position of a strong competitor for the coal trade on the Atlantic seaboard.

Work on the improvement will be commenced as soon as the contracts can be let in order to secure the additional facilities as soon as possible, it being estimated that it will require eighteen months to build the pier. It will be of steel construction and fireproof throughout.

The plans of the new pier as designed by Francis Lee Stuart, chief engineer, and approved by President Daniel Willard, embody a number of features for rapid loading of vessels and reducing breakage of coal to a minimum in handling shipments from cars into the holds of ships. In design the pier will consist of two car dumpers inshore, built in units and equipped with rapid-moving belts leading to movable towers on the pier which can load into vessels on either side or the entire loading capacity can be directed to one vessel.

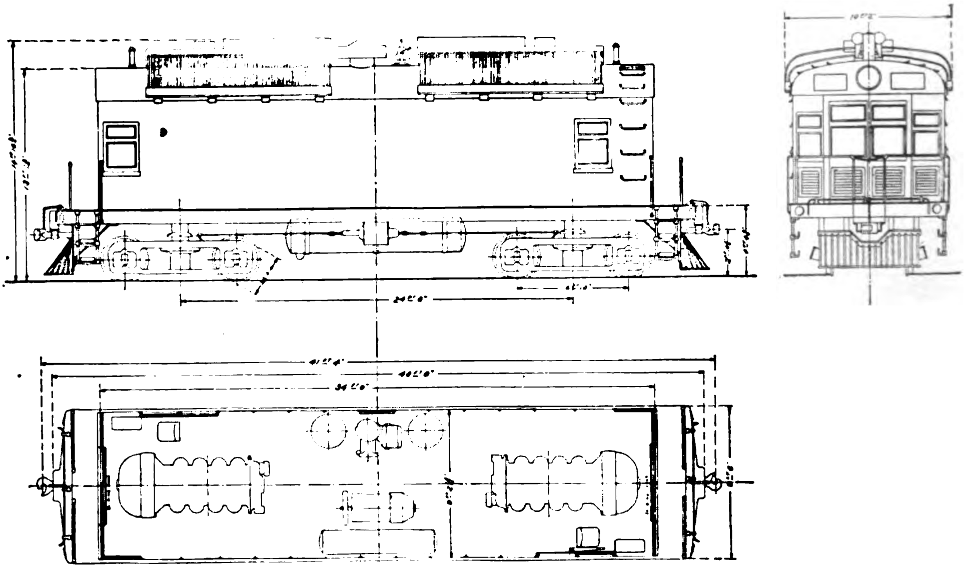
The pier will be 700 feet long by 115 feet wide. The car dumpers will be capable of handling cars 53 feet long and unloading 40 100—ton cars an hour. The belts for conveying the coal will be run at speeds of from 250 feet to 500 feet a minute, thus giving a capacity of from 3,000 to 6,000 tons an hour.

Electrical

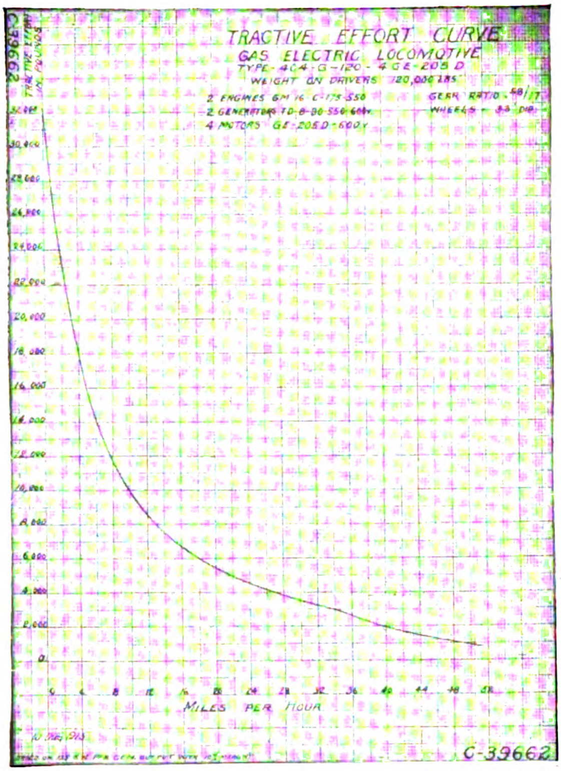
Sixty-ton Gas-electric Locomotives for "Dan Patch" Electric Lines.

THE Minneapolis, St. Paul, Rochester & Dubuque Electric Traction Co., operating what is popularly known as the "Dan Patch" Electric Lines, has recently placed in commission three sixty-ton gas-electric locomotives for freight, passenger and terminal service. These are somewhat similar in design although heavier than the 57-ton gas-electric locomotive which has been in successful operation daily on the company's lines for the past year or more from Minneapolis to Mankato, Minn. The four gas-electric locomotives, as well as thirteen gas-electric motor cars which the railway company has purchased to date, were designed and built by the General Electric Company. It is interesting to note that this is said to be the first railroad in the world operated entirely with gas-electric service.

The railway extends south from the company's terminal building in Seventh Street, Minneapolis, a distance of 107 miles to Mankato. About mid-



Dimension Outline of 60-Ton Gas-Electric Locomotive.



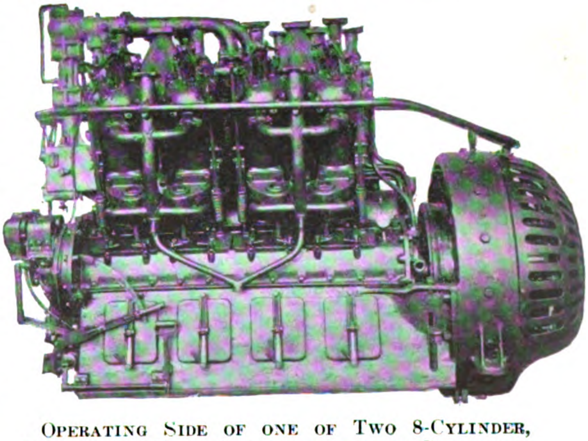
Tractive Effort Curve Showing Approximate Performance of 60-Ton Gas-Electric Locomotive.

way of the line a branch runs northeast from Northfield to Randolph, 7 miles distant. Another extension is contemplated from Faribault southeast to Owatonna, Waseca, Geneva, Albert Lea, Austin, Dodge Center, Rochester and beyond, having Dubuque, Ia., as its objective terminal point. The fine rolling section of Minnesota thus traversed, with productive grain fields, dairy and truck farms and numerous thriving towns and cities of varied industrial activity, is one of the most prosperous in the state.

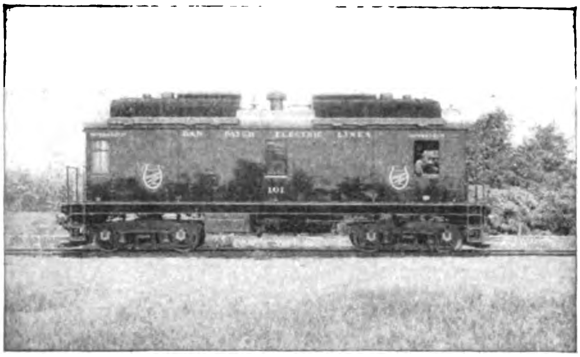
The territory presents few difficulties in road construction, the severest grade on the present line being two percent. The roadway was built, and improvements are being constructed, with a view to permanent stability, reinforced concrete being frequently used in the work. Substantial stations, similar to those used by steam railroads, are located at the various cities and towns along the route; and smaller stations have been erected every few miles at rural stops to afford protection to the traveling public from inclement weather.

About 25 miles south of Minneapolis, at Orchard Gardens station, several thousand acres of farm land have been divided into 5 and 10-acre tracts by the company and are being sold to residents of Minneapolis and St. Paul, many of whom have erected houses and travel to and from their places of business in the city each day on the railway. There are also many attractive lakes along the route, affording excellent facilities for boating, bathing and fishing, which lures thousands of city dwellers out into the open country and to cottages during the summer months. Antlers Park, a summer resort and recreation park 30 miles south of Minneapolis, is owned and operated by the traction company.

Four through trains daily each way, one of which is a limited parlor car train, constitute the normal passenger schedule of the road. The limited makes the run of 107 miles, including four stops, in 3 hr. and 25 min.; while the other trains require 4 hr. and 5 min. for the trip. This service is supplemented by local trains between certain points of the line and the terminals, and by excursion trains during the summer season as occasion requires. One 70-ft. gas-electric motor car, seating 89 passengers, normally makes the run; when travel is somewhat heavy, a trailer is added to this; and for excursions and extra heavy traffic, a train is made up of trail cars drawn by a 60-ton gas-electric locomotive.



Operating Side of one of Two 8-Cylinder, 4-Cycle, 600-Volt Gasoline-Electric Generator Units.

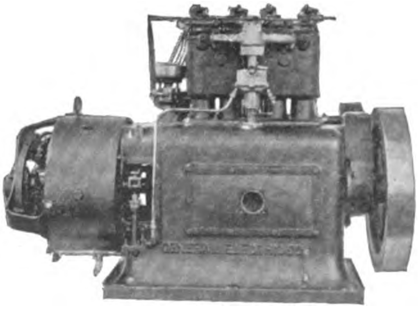


SIDE VIEW OF 60-TON GAS-ELECTRIC LOCOMOTIVE.

The new 60-ton locomotives are double ended and are designated type 404-G-120-4-GE-205-D. They are built with the box type of cab extending nearly the entire length of the underframe and have all the weight on drivers. Each locomotive is equipped with four GE-205-D motors. The truck clearances allow for 100 ft. minimum radius curvature. The power plant consists of two generating sets similar to the one used in the gas-electric motor cars. Only an engineer is required to operate the locomotive.

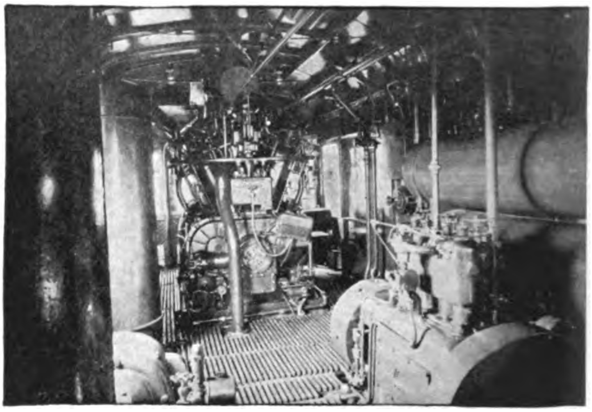
The box cab is of all-steel construction. The side posts and rafters consist of "T" iron and angles covered with sheet steel plates having lap and butt joints securely riveted. Outside platforms of suitable width, protected by hand or guard rails and mounted by iron sill steps, are left at each end to provide entrance through the end center doors. Both ends of the cab are also removable to permit readily the installation of the apparatus. The interior is not divided into compartments. The generating sets and the controllers are installed in each end, while the auxiliary lighting set, air compressor and storage tanks are grouped in the central section. The operator's seat at the side of each end of the cab affords a clear view ahead of both sides of the track. There is also an engineer's sliding side window, which is fitted with an arm rest and assists in giving ventilation, as well as an ample view both of the track and signals. All other windows drop into pockets and are arranged for adjustment. There are fourteen in all, including those in the doors, affording plenty of light in the cab.

Taking up the electrical equipment, each of the two gas-electric generating sets for the power plant equipment is composed of a 175 h-p., 550 r.p.m., 8-cylinder, 4-cycle gasoline engine of the "V" type, which is direct-connected to a 600 volt, commutating pole, compound wound electric generator with an outboard bearing supported by brackets bolted to the magnet frame. The cylinders are 8 in. dia. bore by 10 in. stroke. Ignition is accomplished with low tension magnetos and the sets are started by air pressure the same way as in the gas-electric motor cars, with the additional feature that after one set is running, the second may be started from the first electrically. The control is so arranged that either one or both of the generating units may be used to operate the locomotive from either end, in accordance with the requirements of the trailing train load.



CARBURETER SIDE OF FIVE K.W. GM-23 AUXILIARY GASOLINE ELECTRIC SET.

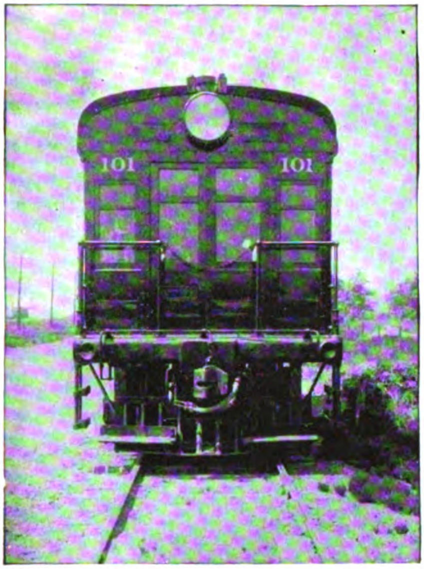
Compressed air for starting is taken from the main reservoirs of the air brake system, which are built with surplus capacity. The two main single-cylinder air compressors are driven from the crank shafts of the main engines, have a displacement of 22.5 cu. ft. of free air per min. at the rated speed and are fitted with automatic governors to maintain a constant pressure. Greater flexibility of control and economy of operation result through electrical transmission of the energy. The engines can rotate at normal speed irrespective of the speed of the locomotive and deliver their maximum power, a feature of great advantage on grades, in case of snow storms or other emergency conditions involving sudden, heavy current demands.



INTERIOR OF CAB OF 60-TON GAS-ELECTRIC LOCOMOTIVE.

There is also an auxiliary gas-electric set, the function of which is to furnish power for lighting the cab, headlights and train coaches, and for pumping an initial charge of air to fill the tanks and start the main engines. This set is started by hand.

Mounted on the axles with nose suspension are four GE-205-D, 600 volt, series, commutating pole, oil-lubricated, box frame, railway motors having an hourly rating of 100-h.p. each. All four axles are therefore driving axles, a forged pinion being mounted on each armature shaft and meshing into a corresponding cast steel split gear mounted on the axle. The gear ratio is 58 to 17 teeth, a reduction of 3.41, which is especially adapted for freight and terminal switching service, as it affords maximum tractive effort at start and low speeds. The motors are ventilated by



End View of 60-Ton Gas-Electric Locomotive.

a special vacuum system in conjunction with the engines. The performance of the locomotive is shown approximately in the curve giving the tractive efforts obtainable at various speeds.

The control of the motor equipments is similar to that of the standard gas-electric motor cars, a type P-53 controller being installed in each end. Two motors are, however, connected permanently in parallel and these two pair, operated like single motors, are placed progressively in series and parallel. The controller provides seven running steps in series and six in parallel, without rheostats in the main circuit. There are also two additional points for shunting the series fields, making a total of fifteen efficient running points.

Inasmuch as electrical energy is transmitted directly, there are no losses through the intervention of mechanical change-speed gearing. To produce the smooth and rapid acceleration, the speed changes of the motors are effected by governing the voltage through varying the strength of the generator fields, which is accomplished by the movement of one handle on the controller. Separate handles are provided for throttling the engine and for reversing the motors. The lattor is accomplished instantly by changing the motor connections in the usual manner, without stopping the engines, which always rotate in the same direction. This allows the train to be brought to a halt quickly independent of the brakes in an emergency.

The principal data and dimensions applying to the locomotives are as follows:

Total net weight equipped on rail.	120,000 lb.
Weight per axle	30,000 lb.
Maximum tractive effort	32,200 lb.
Length between knuckle faces of couplers	41 ft. 4 in.
Length over cab	34 ft.
Height overall	14 ft. 10¾ in.
Width overall	10 ft. 2 in.
Total wheel base	24 ft.
Rigid wheel base	6 ft. 10 in.
Track gauge	4 ft. 8½ in.

Progress on the Electrification of the Chicago, Milwaukee & St. Paul Railway

CONSTRUCTION work on the electrification of the western lines of the Chicago, Milwaukee & St. Paul Railway has been prosecuted most actively since the initial order for equipment was placed with the General Electric Company in September of 1914. In view of the magnitude of this project, the progress made to date has been remarkable.

The overhead construction, which will include 650 miles of single track, has been completed for a distance of more than 200 miles. The 100,000 volt transmission line being erected by the railway company to parallel the electrified tracks has been completed for an equal distance, and tie-in lines from the 100,000 volt system of the Montana Power Company are ready for service The trackage now ready for train operation includes extensive yards and sidings at Three Forks, Deer Lodge and Piedmont and passing tracks at other points. The rail bonding crews have followed the overhead construction gangs completing the ground circuits.

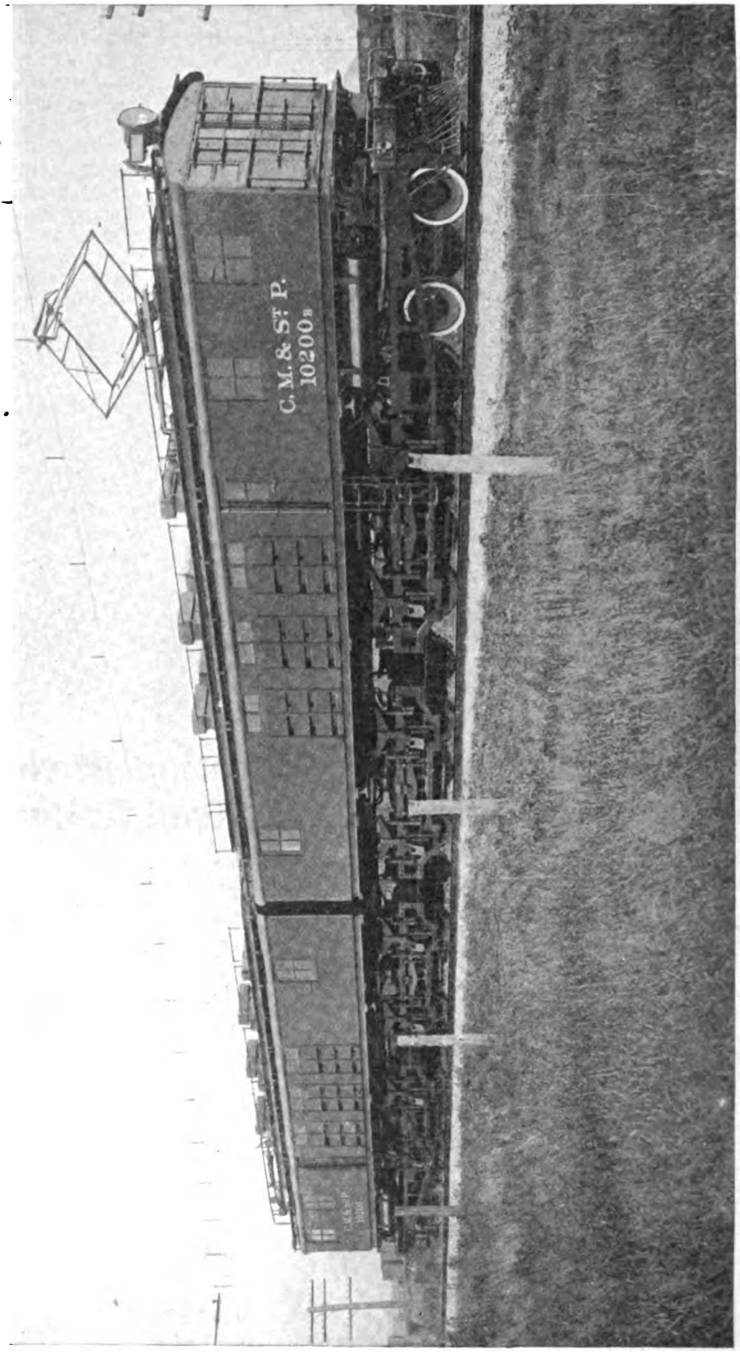
Illustrations show the general appearance of the new type of trolley construction and transmission lines. It will be noted that wood-pole construction is used throughout both for cross span and bracket construction. The twin 4/0 trolley wires are suspended individually and separately from the same steel catenary and the hangers of one trolley wire are located at points mid-span on the other. In the switching yards only one trolley wire is used.

SUBSTATIONS

Seven substations designed to supply power to the first half of the 440 miles of route have been completed and electrical equipment is being rapidly installed. Complete shipments of transformers, motor-generator sets, switchboards and other accessories have been made by the General Electric Company, for the stations first erected, and the equipment of four substations is practically ready for operation. Construction crews are proceeding with the erection of the remaining seven substations shown on the profile between Deer Lodge, Montana, and Avery, Idaho.

Table of Substation Equipment

Sub. Name	Miles from Avery	No. Units	Size M.G.Sets KW.	Total K.W.	Size Trans. K.V.A.	Total K.V.A.
Two Dot	425.6	2	2000	4000	2500	5000
Summit	392	2	2000	4000	2500	5000
Josephine	361.8	2	2000	4000	2500	5000
Eustis	331.8	2	2000	4000	2500	5000
Piedmont	289.1	3	1500	4500	1900	5700
Janney	261.7	3	1500	4500	1900	5700
Morel	228.3	2	2000	4000	2500	5000
Gold Creek	192.7	2	2000	4000	2500	5000
Ravens	160	2	2000	4000	2500	5000



First of the 42 282-Ton 3,000 Volt and Direct Current Locomotives on the Test Tracks of the General Electric Company at the Erie, Pa., Works.

Primrose	122.2	2	2000	4000	2500	5000
Tarkio	85.6	2	2000	4000	2500	5000
Drexel	47.5	2	2000	4000	2500	5000
East Portal	23.7	3	2000	6000	2500	7500
Stetson	3.6	3	1500	4500	1900	5700
		32		59,500		74,600

MOTOR-GENERATOR SETS

Each of the motor-generator sets consists of a 60 cycle, 3 phase, 2300 volt synchronous motor direct connected to two 1500 volt direct current generators. The generators are connected permanently in series to supply 3000 volts to the trolley. Each set is also provided with an exciter at each end, one providing excitation for the revolving field of the motor and the other supplying the separately excited fields of the d-c. machines.

These sets are in general similar to the five 1000 kw., 2400 volt units in operation on the Butte, Anaconda & Pacific Railway except as regards voltage and capacity. One new feature, however, has been added which deserves mention. This consists of a longitudinal ventilation of the core and field coils similar to that employed in the well-known Ge ventilated railway motor. The use of this method of cooling has effected a considerable reduction in the floor space required per kilowatt.

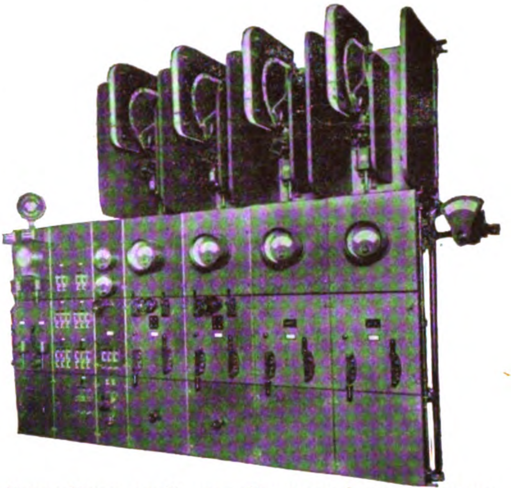
Two Dot Sub-Station, Located at Extreme Eastern End of Electrification.

The d-c. generators are equipped with commutating poles and compensated pole face windings to insure sparkless commutation under heavy overloads. This overload capacity is 150 per cent normal load for 2 hours and 300 per cent normal load for periods of five minutes. This will provide ample margin for starting a train of maximum tonnage on the most difficult grades.

It is interesting to note in connection with these substations that the motor-generator sets are designed to operate inverted in case the regenrated power exceeds that required by other trains operating nearby. For this reason, there is no necessity for water boxes or other energy consuming devices, since the excess energy is transmitted to the 100,000 volt system.

SWITCHBOARDS.

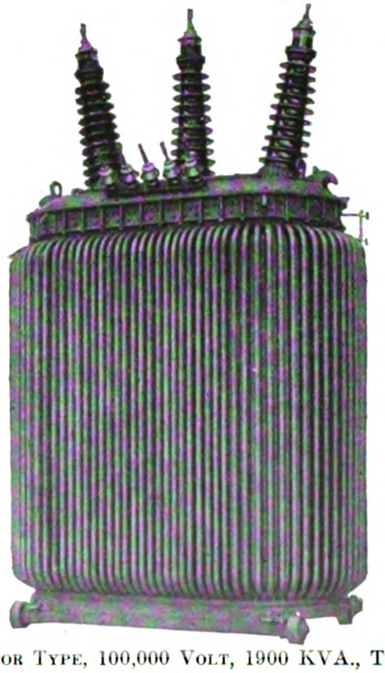
The main direct current switchboard in each station is of special interest, since it represents the latest practice in high voltage direct current switching apparatus. A panel is provided for each set and two panels are provided for feeders in each direction.



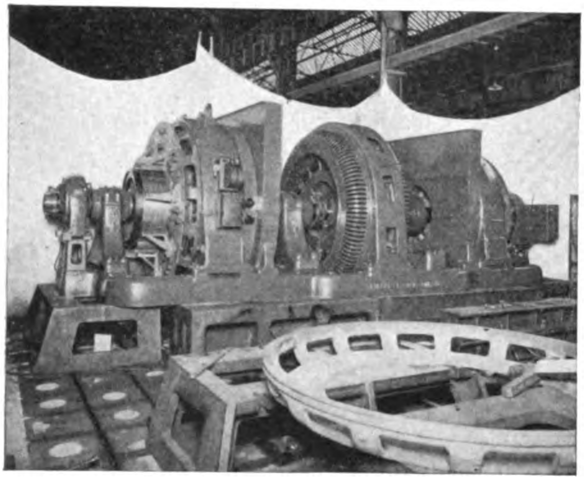
High Voltage Direct Current Switch Board.

The circuit breakers and switches are mounted on separate panels located above and a short distance back of the main panels, similar in general to those now operating in the Butt, Anaconda & Pacific substations. The control handles for operating the breakers and switches are located on the main panels and are connected to the circuit breaker panels through insulated wooden rods.

In addition to the special high voltage d-c. panels, switchboards are also being furnished for the synchronous motors and auxiliary circuits. Oil switches and other standard 100,000 volt equipment are also being installed for the high tension circuits.



Radiator Type, 100,000 Volt, 1900 KVA., Transformers.

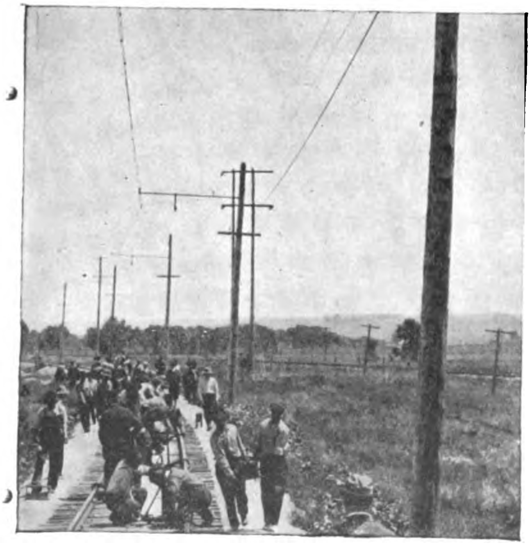


2,000 Kilowatt, 3,000 Volt DC Motor Generator Set.

TRANSFORMERS

The transformers, which are under construction in the Pittsfield Works of the General Electric Company, are an example of the most recent design and construction. There are a total of thirty-two of these units which are to be used for stepping down the power supply from the 100,000 volt transmission line to 2300 volts as required for the synchronous motor-generator sets. These transformers will be installed in fourteen substations, which will furnish power for the entire electrification from Harlowton, Montana, to Avery, Idaho. There are twenty-three 2500 kv-a. and nine 1900 kv-a. units located as shown in the accompanying table.

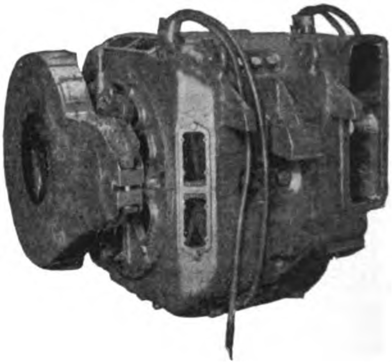
These transformers are all of the 3 phase core type with a ratio of voltages of 102,000 to 2300. For regulating purposes taps are provided for 97,2000 volts and 94,2000 volts. Taps are also brought out on the seconday windings to give 1150 volts or half voltage for starting the motor-generator sets.



Single Track Curve Showing Overhead Line Construction, Construction Crews Bonding and Running Rails.

The transformers are oil cooled and the tanks are of the tubular type, the main body consisting of steel plate with tubes welded to the side of the tank at the top and bottom giving absolutely oil-tight joints. An air dryer and breather is attached to the tank so that all inter change of air between the interior of the tank and the outside must take place through this channel. This dryer is provided with chambers containing a moisture extracting medium thereby preventing the entrance of moisture to the tank.

The bushings furnished with these transformers are weatherproof and as all joints are tight, they are suitable for outdoor as well as indoor operation. At the top of the high tension oil filled leads is a glass cup which shows the height of oil in the leads. Accessories consisting of thermometer, oil gauge and drain valve are also provided. Each transformer is mounted on flat wheels to facilitate movement for making repairs and a lifting device is furnished for removing the transformer core.



One of the 430 H. P. 3,000 Volt Motors.

AUXILIARY TRANSFORMERS

In addition to the main transformer equipment, each substation will be furnished with a standard 10 kw., 3 phase transformer stepping down from 2300 to 110 volts for lighting and auxiliary power circuits.

For operating the railway signal circuits, a standard 25 kw., single phase transformer is being installed in each substation stepping up from 2300 to 4400 volts. A portable oil drying outfit will be used for removing moisture from the transformer oil. This outfit consists of a motor-driven pump which forces the oil through an especially designed filter and the electric drying oven for drying the filter paper. A portable trans-former dryer and an oil testing set will also be supplied.

For housing the families of the substation operators, a four-room and five-room bungalow are being constructed at each station and these will be furnished with light and power from the low voltage auxiliary circuits.

LOCOMOTIVES

Work on the construction of the forty-two 282-ton locomotives for this electrification is progressing rapidly at the Erie Works of the General Electric Company and in the Schenectady plant of the American Locomotive Company. The first complete locomotive was placed on the test tracks early in September and shipment was made as scheduled on September 25th. This locomotive has been taken in charge by the railway company at Chicago and is now being exhibited at various points on the Chicago, Milwaukee & St. Paul system under the direction of Mr. C. A. Goodnow, Asst. to the President. A complete set of tests indicate that the locomotive will easily exceed the expectations of the designers.

The actual weights of the completed freight unit are as follows:

Total	564,000 lb.
Weight on Drivers	448,000 lb.
Weight per Driving Axle	56,000 lb.
Weight per Guiding Axle	29,000 lb.

Twelve of the locomotives on order are geared for passenger service and the remaining thirty are geared for freight service. Both freight and passenger types are equipped for regenerative braking, this apparatus being under control of the engineer. All of the passenger locomotives and several of the freight locomotives will be equipped with oil fired steam boilers for heating the passenger trains. This equipment will include ample storage tanks for oil and water.

Interstate Commerce Commission

Valuation Hearing.

HEARINGS before the Commission on the fundamental issues involved in the physical valuation of railroads were concluded on October first. After two days of oral argument by counsel for the principal carriers of the country.

Representatives of many State railway commissions were present at the sessions, but made no argument. A. E. Helm of the Kansas State Commission, explained before adjournment that the State representatives did not feel willing to attempt an answer to the arguments presented at this time. Chairman McChord allowed the State commissions sixty days in which to file briefs giving their views of the questions involved, but declined to say that time would be granted the States in the future for oral argument. He said any future ruling of the commission made before the State commissions have opportunity to file their briefs will not be predicated on the railroad arguments.

George S. Patterson, counsel for the Pennsylvania and other Eastern railroads, told the commission that in arriving at the value of properties of carriers, tracks and other facilities used jointly must be credited to the joint users. The purposes of the valuation, he said, were to arrive at a basis for correct rate making, and all facilities used by a carrier must be considered in this connection.

It was brought out during the hearing that the valuation work is costing $2,700,000 a year and that it will not be completed by the Commission until 1921.

The railways were represented before the Commission by a committee consisting of George Stuart Patterson of the Pennsylvania Railroad, appearing for the Eastern carriers; Pierce Butler of the Milwaukee; Stephanson for Western carriers; W. C. Brantley for Southern carriers, and Sanford Robinson, representative of the carriers generally.

Egg Inspection Rules Upheld.

THE Commission has dismissed the complaint of the New York Merchants Exchange and others against the Baltimore and Ohio and other railroads and has approved the rules adopted by these roads for the inspection of egg shipments to New York city. Cases of eggs are received by the railroad at the shipping point, it was said, and are receipted for by the carrier as in apparent good order (contents and condition of contents of packages unknown). When these shipments arrive at the destination in the metropolitan district of New York in the same apparent condition, showing no external evidence of damage, the consignees are not accorded the right to examine the contents of the cases prior to delivery. On the other hand, the consignees are required to receipt for the cases as in apparent good order (contents and condition of contents of packages unknown).

The Commission pointed out that the enforcement of this rule has not diminished the volume of shipments of eggs to New York. Furthermore, it was said, the same rules apply at all receiving stations of the New York Central and West Shore. Apparently, it was declared, the same thing is true of the other carriers, with minor exceptions, the Baltimore & Ohio, for example, confining the rules to territory east of Pittsburg.

The rules are included in a tariff applicable generally over the Pennsylvania lines.

The rules of the Central of New Jersey are somewhat more favorable to consignees at New York, Brooklyn and Jersey City than at other receiving stations.

Lower Rates for Ammunition Denied.

THE Commission has rejected plans of the Mallory Steamship Co.'s lines and other railroads to reduce through rates on small arms and ammunition from the Atlantic seaboard to Arkansas and Oklahoma points.

The through rates proposed were lower than the sum of rates to intermediate points. This was a violation of the interstate commerce laws.

Effort to Expedite Car Loading.

THE Commission has issued a circular letter urging shippers to co-operate with carriers in an effort to prevent a car shortage. The circular says in part:

"Informal complaints to the Commission indicate that the annually recurring failure of transportation facilities known as 'car shortage' is again appearing. The Commission urges on all shippers and all carriers that close attention to methods of loading, unloading, moving and promptly returning to use the cars now available will go far toward making the present supply of cars sufficient for all purposes.

"In order that the business of the country may go forward without interruption, the Commission urges shippers, both individually and through their associations, to co-operate to secure the prompt and full loading of cars and their prompt release. One of the chief causes of failure of car supply in past seasons has been the unnecessary detention of cars by careless shippers and by shippers using them for storage purposes. In the general public interest shippers should endeavor to release cars at the earliest possible moment without regard to the free time given by the tariffs.

"All the efforts of the shippers will be unavailing, however, unless the carriers also use extraordinary measures to eliminate all delays chargeable to them. The failure of car supply is usually a failure of car movement. The congestion of terminals is the ever present feature at times of such failure. The Commission, therefore, urges carriers to make every possible endeavor to improve their methods of operation of terminals in order that cars may move promptly."

Arguments for Higher Live Stock Rates.

THE Commission listened to arguments on October 8th, in the case involving the proposed advance in Eastern live stock rates, which grew out of the old Eastern 5 per cent case. In this instance the railroads declared they sought to advance the interstate rates on live stock and packing house products from Chicago and Mississippi River crossings to Eastern trunk line territory to a reasonable basis.

E. S. Barton and O. E. Butterfield argued the case for the Eastern railroads. They claimed that the showing made in the 5 per cent case was sufficient warrant for the proposed advance on live stock and packing house products, because the need of more revenue was admitted by the Commission. They said carriers took the live stock and packing house scale prescribed by the Commission in the Oklahoma case and used it for the territory involved, not in full, because they recognized that conditions were not the same. In recognition of the differences, the carriers made the rate proposed by them 13 per cent lower than in the Oklahoma-Texas scale.

A. B. Hayes for the shippers in commenting upon the application of that scale to the Eastern territory remarked that if the carriers had established a proper relationship, based on density of traffic, the live stock rates from Chicago to Pittsburg and Buffalo would be but 9 cents instead of 18 as at present, or 23 as proposed.

The point he most emphasized was that the proposed rate would change Pittsburg and Buffalo from 60 per cent to 70 per cent points. For 25 years, he said, they have been taking 60 per cent of the New York—Chicago scale.

Luther M. Walter, for the shippers, said that the railroads, instead of seeking to justify by putting on men to show the cost of doing the business, or to show anything about any changes in operating conditions to justify changes, placed tariff agents on the stand to say that, in their opinion the existing rates are too low in comparison with some other rates.

H. K. Crafts for the shippers attacked the proposed advance on packing house products, pointing out that the territory involved is the only one in which bulk packing house products pay a higher rate than products carried in package form. He also called attention to the fact that there are only three commodities that yield a higher revenue than packing house products and one of them is green salted hides which should really be classed as a packing house product.

Ruling on Explosives.

THE Commission has increased from 160 to 250 pounds the weight of boxes containing explosive projectiles. This change in the regulations regarding the shipment of explosives was made on the application of munition companies.

Important Cases Scheduled for Current Session.

A number of important cases have been scheduled for hearing, or are under consideration by the Commission, which now has settled down to its winter routine. Principal among those is the petition of the western carriers for a rehearing of the case in which the railroads sought to increase freight rates generally throughout their territory.

The commission in deciding this case originally, awarded increases on a number of commodities carried, but not on the bulk of the freight. The roads only benefited to the extent of approximately $1,500,000, whereas their application contemplated an increase in rates of nearly $10,000,000. The principal items to bear the additional burdens of rates fell upon grain and grain products, fresh meats and packing house products. The commission, however, decided that these shipments carried their full burden of railroad taxation.

The petition for the rehearing, it is believed, will be granted in some respects, but the whole question, it is thought, will not be reopened again.

Next in importance and a case of far-reaching effects is the investigation now under way by the commission in the reclassification of lumber rates. Whereas this commodity is now divided, for the purpose of fixing transportation costs into hard and soft lumber, the commission will endeavor to classify the products in order to distribute transportation expenses more equitably. As viewed by experts, a reclassification of lumber rates will probably reduce the rates on soft lumber, but increase them on hard lumber according to the value of the lumber carried. This investigation will be closed by Dec. 15, at which time the commission will hear the arguments of parties interested.

Principal among the cases wherein roads have applied to retain their boat lines, is that of New York, New Haven & Hartford Railroad, which owns vessels plying in trade routes between New York and New England points. Closely following this case will be the petition of the Lehigh Valley road, owning vessels on the Great Lakes and in and around New York. These applications were made to the commission under the Panama Canal act, prohibiting railroads from owning vessels which tend to stifle competition through such ownership.

To the railroads themselves, however, the physical valuation bureau of the commission has undertaken a task of much interest—the valuation of the railroads' property. This work will probably occupy the attention of the bureau for the next ten years. When it has been completed, this government bureau will be able to say whether a rate on any particular commodity is reasonable, or excessive. It will also supervise the issuance of stock.

Among other cases which will come up for consideration before the close of the year are coal rates from the West Virginia mines to lake points, western passenger fare increases, now under advisement by the commission, the export grain case, the question as to whether special charges should be made for "stopping cars in transit" and the adoption of rules for the inspection of locomotives.

Lehigh Valley Rehearing.

THE Commission has announced that arguments on the petition of the Lehigh Valley road to retain ownership in its water carriers on the Great Lakes would be heard Oct. 23.

The commission granted the railroad a rehearing in the case, following a decision ordering a severance of ownership between the railroad and its water lines.

Valuation of Wire Systems.

THE Valuation Bureau of the Commission heard arguments on October 5th, by representatives of telephone and telegraph companies as to the manner of appraising such property. The hearing is an extension of the investigation now being made by the bureau into the value of railroad property.

One of the points under consideration is the value of the right of way of the railroad. The telephone companies claim that this right of way is part of the general property of the companies.

The general line of inquiry followed the suggestions brought out in the railroad hearing as to physical ownership and value of lines, franchises and terminal facilities.

New Railroad Accounts.

BEGINNING with the fiscal year 1916 the railroads will be required to separate their operating expenses between freight and passenger traffic in their reports to the Commission. An order to this effect has recently been issued by the commission. On June 13, the statistical division of the commission distributed a set of rules for apportioning operating expenses between different classes of traffic. A public hearing was subsequently held, in the course of which representatives of the railroads and shippers and expert accountants expressed their opinions relative to the commission's formula. The main point of the discussion was whether the grosss ton-mile or the locomotive ton-mile should be used to distribute expenses which were common to both passenger and freight traffic, but which could not be directly charged to either class of traffic. In its order the commission makes its tentative rules first issued permanently effective, with the reservation that the facts and arguments presented at the public hearing do not warrant it in approving either the gross ton-mile or the locomotive ton-mile basis for the division of expenses that cannot be directly charged, and the railroads are required to report the disputed portion of operating expenses as undivided. With these basic figures available, the apportionment may be made either the gross ton or the locomotive ton-mile basis.

This new requirement of the commission will be chiefly significant in its bearing on rate cases. There has been a growing tendency, which was especially noticeable in the Western freight rate case, to base arguments as to the fairness and reasonableness of rates upon ton-mile costs. Many methods, each with its own particular adherents, have been devised for making the division of expense between freight and passenger traffic, and much controversy has been developed as to the proper method to be employed. The rules of the commission, although they beg the main points in dispute by not making any fixed requirement as to the basis to be used in disputed portions of operating expenses, will undoubtedly be used and cited as official corroboration of the profitableness or unprofitableness of rates which are up for adjustment or advancement.

The division of operating expenses will also have an important relation to wage arbitration. One of the chief arguments advanced by railroad employees during recent wage arbitrations has been that, although rates of wages have advanced, labor costs of conducting transportation, because of heavier locomotives and trains, have actually declined, or, in other words, the costs per ton-mile to the railroads in terms of wages, instead of growing greater, were decreasing. The submission of this statistical argument by employees has always assumed a certain method of division of expense between freight and passenger traffic to which the representatives of the railroads have been unable to give assent. It will be interesting to note in future arbitrations whether the official method of apportionment, prescribed by the commission, will bear out the contentions of the employees or of the railroad managers.

Western Passenger Rate Case.

THE forty-six railroads operating between the Rocky Mountains and the Mississippi River, have presented arguments before the Commission in their petition to increase the interstate passenger rates from two, two and one-half and three cents a mile. Higher wages paid employes and increased cost of equipment and taxes, were some of the reasons advanced for the necessity of the rate increases.

Charles Donnelly, counsel for the Northern Pacific and other roads, pointed out that these railroads will pay in 1915 $97,000,000 more for labor alone than in 1900 and that the increase is due more to higher scales of pay than to increased numbers of workmen.

It is estimated by the railroads that the increased fares would add from $10,000,000 to $17,000,000 a year to their revenues.

STATE COMMISSIONS.

California.—In an endeavor to help avert what might become a serious car shortage in the movement of California crops, the State Railroad Commission has brought to the attention of all shippers the absolute necessity of loading and unloading freight cars with the utmost expedition. Officials of the Southern Pacific Company state that there are plenty of cars to go round, but that the difficulty is in getting them loaded or unloaded and moving. Shippers can materially aid the situation by bearing in mind the fact that for every day a freight car is held beyond the time actually required for loading or unloading, some other shipper is deprived of a chance to load the car and the railroad of a chance to haul it with its load to destination promptly so that it will be available for other loading.

The Commission says:

"We desire to call your attention to the fact that during the next few months a very great number of cars will be required to handle California traffic. Transportation lines fear that as a result of the extremely heavy eastbound carload business to be handled it will materially affect the number of cars which will be available for local traffic. The Commission therefore urges that all shippers and receivers of freight in car lots use every effort to unload and load cars in the shortest time possible and wherever practicable to load cars to their full capacity, thereby reducing the number of cars required.

"It would help the situation greatly, if shippers, in placing orders for cars would advise the carrier of the quantity of freight to be moved, and thus give the carrier an opportunity to supply intelligently the equipment for the particular movement. Transportation lines are requested to handle all carload shipments promptly and to move empty cars to loading points without delay. All bad order cars should be repaired for service as promptly as possible.

"The Commission feels that a co-operation of shippers and carriers will assist materially in preventing a serious car shortage."

Recently a similar appeal was addressed by the Oregon Public Service Commission to the shippers of Oregon.

New York.—On an opinion by Commissioner Devoe P. Hodson, the Public Service Commission has decided the long-pending Lockport Interchange case, and has ordered the New York Central Railroad, and the International Railway to provide facilities for the switching of freight between the two roads in the city of Lockport. This service must be put into effect on or before October 15th. The two railroads are permitted to prepare their own plans and enter into their own agreements which must be submitted to the Commission for approval, including a reasonable switching tariff for such service involved. If these agreements are not made and the service not put into effect before the date set, the Commission will enter a final order compelling the performance of the work in detail.

This is not only the oldest case before the Up-State Public Service Commission, having been filed in December, 1908, but it is the first time that the Commission has ordered an interchange of freight between two railroads in this State.

Commissioner Hodson, outlining the history of the case ascribes the long delay to the fact that a number of similar cases were pending in the courts and commissions of other States, and that a case parallel to this has only recently been decided by the United States Supreme Court. Commissioner Hodson is, however, unsparing in his criticism of a state of affairs which permitted the condition complained of so long to exist in Lockport.

"There is no strange or unusual feature presented in this case," he says in his opinion, "except, perhaps, the one fact that it should have remained for this Commission to solve a problem which the carriers themselves should have adjusted long ago."

The Public Service Commission, Second District, has recently called the attention of the Trunk Line Railroads within its jurisdiction to the necessity for great care in the inspection of their rails, in accordance with the following letter, showing a distinct increase in failures due to internal transverse fissures:

"The Commission desires to call your attention to certain conditions which are indicated by the reports of rail failures due to internal transverse fissures, which are filed with the Commission. These conditions are shown somewhat by the following table in which the figures given are the number of failures reported for the months named during 1914 and 1915:

	1914	1915
July	12	12
August	5	16
September	5	32

"The Commission is of the opinion that it is extremely essential that your employes be cautioned to exert the utmost watchfulness in inspecting the track in order that as many of the rails as possible in which transverse fissure may develop and appear on the surface may be detected before complete failure.

"The Commission also urges that your employes be warned to use great care in passing through automatic block territory after having observed an automatic signal in the stop position. A large number of the failures reported to the Commission have been detected by means of the signals, and it is highly desirable that extreme care be used to avert an accident which may be properly assigned to the transverse fissure."

The Commission has received the reports of 370 rail failures due to internal transverse fissure since December 1, 1913 at which time an order was made requiring the railroads to report all such failures, following the wreck on the Lehigh Valley Railroad at Manchester, N. Y., which particularly called to the attention of the public this character of rail defect. Other accidents due to it have occurred since then, but the Commission believes that the efficient inspection made by the railroads has undoubtedly prevented a great number of accidents which might have been charged against the internal transverse fissure.

Pennsylvania.—The Public Service Commission in its further decision has upheld its administrative ruling No. 9, which forces the railways of the State to issue one-way passenger tickets valid for use in either direction. The Trunk Lines applied to the Commission for the revocation of this ruling and for this reason its effective date was extended to October 1st, and a hearing held on September 24th. On account of the Commission's final decision in this matter, the ruling went into effect on October 1st.

ORGANIZATION NOTES.

Convention of American Association of Engineers.—Plans for the National convention of the American Association of Engineers to be held in Chicago, December 10-11, are being rapidly completed. All engineering societies have been invited to send official representatives to the convention to join in the discussion and assist in attempts to solve a few of the welfare problems confronting the engineer.

During the latter half of September a gain of 55 members was made. A National Membership Committee has been selected to push the organization of local chapters in various parts of the United States. Owing to the increase in its activities, the Association has taken larger quarters at 29 S La Salle street, Chicago.

Supervision of the work of the Qualification Committee has been undertaken by Ernest McCullough, consulting engineer, Chicago. The Service Clearing House is actively engaged in putting the engineer in touch with the employer and the employer in touch with the man without charge. One of the largest electrical manufacturing companies in the United States has given the Association the preference in filling all vacancies which require men of technical training.

An inspection was made of the tunnels of the Chicago Warehouse and Terminal Company on October 9, 1915, by members of the Association. This was the first of a series of weekly inspection tours.

Semi-Annual Meeting of Railway Development Association.—Indications are that the semi-annual meeting of the Railway Development Association, which will be held in New York, November 9, 10 and 11, will be the most important in the history of the organization, bringing together railroad and Government officials and business interests to consider industrial and agricultural development and commercial activity in general. The program which has been completed under the direction of John C. Emig, president, and H. O. Hartzell, secretary, points to a meeting which because of the wide range of subjects for discussion will be of interest in business circles generally.

At the informal dinner of members and their friends, which will take place the evening of the 10th, several prominent speakers are on the program, including Hon. F. C. Howe, United States Commissioner of Immigration; Senator John W. Weeks, of Massachusetts; George A. Post, president, Railway Business Association; Howard Elliott, president, New York, New Haven and Hartford Railroad, and Ralph Peters, president, Long Island Railroad.

Following is the complete program:

November 9.—General Railroad Business, George A. Post; Immigration, Hon. Fred C. Howe; Immigration Field Work, John F. Fox, Northern Pacific Railway; Exports, W. S. Kies, vice-president, National City Bank; Fruit Growing, J. H. Hale, styled "The Georgia Peach King"; What Makes an Industrial Department Permanent, W. W. Wood, Baltimore and Ohio Railroad; Eliminating Competition by Joint Location of Industries, C. G. Dana, Atchison, Topeka and Santa Fe Railroad.

November 10.—Agriculture, Prof. Alva Agee, dean, New Jersey State College of Agriculture; Intensive Agriculture, Wm. H. Olin, Denver and Rio Grande Railroad; Co-operation between Railroads and Commercial Organizations, representative of Buffalo Chamber of Commerce; Acquisition of Land for Industrial Location, President Emig; Horticulture and Agriculture in the South, James A. Hearne, New Orleans and Northeastern Railroad. An inspection of New York's harbor and terminals will take place in the afternoon, followed by dinner.

November 11.—Domestic and Foreign Immigration, S. A. Hughes, St. Louis and San Francisco Railroad; Markets and Rural Organization, C. C. White, United States Department of Agriculture; Opportunities in the Making, W. P. Hartman, Chicago, Rock Island and Pacific Railway; Docks and Harbors, R. A. C. Smith, New York.

An official welcome on behalf of the city of New York will be extended by Mayor John Purroy Mitchell, followed by a response from President Emig, who is the industrial agent of the Cleveland, Cincinnati, Chicago and St. Louis Railway (the Big Four), Cincinnati.

Merchants' Association of New York Declares Railroads Underpaid for Carrying Mail.—The Committee on Postal Affairs of the Merchants' Association of New York, has recently concluded an exhaustive investigation covering the railway mail pay situation through which it reached the following general conclusions:

That the railroads are greatly underpaid for carrying the mails;

That there is no profit in carrying the mails at present rates;

That the compensation paid by the Government has been cut 50 per cent in the last thirteen years;

That the new plan of payment advocated by the Post Office Department would compel further reductions;

That the United States Government pays for postal freight carried on passenger trains only one third what the merchants of the country pay for merchandise carried on freight trains;

That with the extension of the parcels post, freight is being diverted from the railroads and their freight revenues are being seriously threatened.

In view of these conclusions, the Merchants' Association at a special meeting held on October 21st, adopted the following resolutions:

"Whereas, It is of vital importance to every business interest and to the entire people that their means of transportation constantly be maintained at the highest practicable point of efficiency, which condition is impossible unless the railroads be assured of the revenues necessary for their proper support;

"Whereas. It is shown by the analyses of the Interstate Commerce Commission

(a) That railroad revenues as a whole are insufficient and should be increased; and

(b) That the deficiency is mainly due to insufficient passenger service earnings; and

"Whereas, It is shown by the analyses of the Bourne Joint Congressional Committee that the earnings of the mail traffic branch of the passenger service are approximately 22½ per cent below the average earnings of the passenger service, which the Interstate Commerce Commission finds deficient as a whole; and

"Whereas, it is shown by the Report of The

Association's Committee on Postal Affairs that the average rate of compensation paid by the Government to the railroads for mail carriage has been reduced approximately 50 per cent since 1902, and now produces little or no profit and possibly entails a loss; and

"Whereas, The railroads receive no payment

For increase in weight of mails during the four-year period following each quadrennial weighing;

For apartment-car space, in 4,000 cars, used mainly for assorting mails in transit; and

"For so-called 'side' and transfer service; the value of which uncompensated services is now approximately $11,000,000 to $12,000,000 per year; and

"Whereas, It is proposed to abolish the present method of payment by weight, and to substitute therefor payment by space exclusively, on a basis which will exact from the railroads great increase of service without corresponding increase in compensation; and

"Whereas, The space-rate proposed is equivalent in the case of fully loaded cars to a rate of 1¼ cents per ton-mile for freight carried for the Government on passenger trains, while the same high-class freight if carried for private shippers on freight trains, throughout the country, would pay from two to three times that rate per ton-mile; and

"Whereas, the space-plan proposed totally disregards the principle upon which the entire freight rate structure is based, namely, 'rates proportioned to value of service'; arbitrarily limits the revenues which may be derived from mail-carriage; makes the carriage of freight much cheaper on passenger trains than on freight trains; and dangerously attacks the existing freight revenues of the railroads; now, therefore, be it

"Resolved, By the Merchants' Association of New York: That the public welfare requires that the country's transportation facilities be maintained in constantly efficient condition, to effect which end the railroads must receive adequate payment for their services; and therefore that rates shown to be unduly low should be advanced to a fair basis.

"Resolved, That in our opinion the compensation now paid the railroads for mail carriage is insufficient, and should be increased by payment for service at present uncompensated for; and that we therefore recommend

(a) Payment for the present, for weight, on the basis of the existing law, but with provision for annual instead of quadrennial weighings;

(b) Payment for apartment-car space, pro rata, upon the basis of payment now in effect for full postal cars;

(c) Payment to the railroads for side and transfer services, or, as an alternative, that the railroads be relieved of the performance of those services.

"Resolved, That no new and untried plan for determining railway mail pay should be adopted unless or until approved by the Interstate Commerce Commission, after thorough investigation, with especial reference to the effect of such plan upon the railroads' existing freight revenues, and the equity of rates proposed for the carriage of postal matter upon passenger trains in comparison with the rates charged for first class merchandise on freight trains; and we recommend that for not less than two years, all weighings and adjustments for determining railway mail pay be supervised by the Interstate Commerce Commission, which Commission shall obtain from the Post Office Department and the railroads reports covering all necessary information as to the service performed, and thereafter report to Congress, with recommendations as to further changes, if any, that should be made in the law; and we further recommend that pending such report and recommendations by the Interstate Commerce Commission the existing law be continued, but with the modifications indicated by the preceding resolution.

"Resolved, That the plan of space-payment for mail-carriage proposed by the Bourne and the Moon bills is excessively discriminatory in favor of the United States Government, in that it makes, for mail-freight carried on passenger trains, a rate only about one third to one half the rate paid for high-grade freight carried on freight trains, which condition will promote the diversion to the mails of large quantities of high-grade merchandise, on all of which the railroads will suffer a loss of two thirds of their present freight revenues; and therefore that The Merchants' Association of New York oppose any and all bills for the readjustment of railway mail pay on the basis mainly of space or substantially as proposed by the Bourne and the Moon bills."

October Meeting of New York Railroad Club. The October meeting of the New York Railroad Club was addressed by Mr. W. R. McKeen, of Omaha, Neb., consulting engineer, motor cars, Union Pacific Railroad, on "The Value of Motor Cars on Railroad Systems." Mr. McKeen's statements proved conclusively that the installation of motor cars in many cases greatly increases the gross passenger revenues of branch lines, while their cost of operation shows a marked economy over that of train service. Speaking of motor car construction, he mentioned the following two features that the past ten years' practical service seems to demonstrate and substantiate:

First. The single steel sill in place of the well established double center sill construction in wooden cars. A single steel center sill will develop all the strength necessary or required and therefore its simplicity, economy and desirability, reinforced by its successful operation in practice, shows the fallacy of using two sill design where one will answer. The steel center sill in motor car structure I figure is three times as strong as two standard wooden draft sills.

Second. The gasoline motor cars were among if not the first all-steel passenger cars built, and notwithstanding their comparative light weight have shown remarkable strength and safety characteristics. These cars are so constructed that the load is almost entirely carried and borne by the sides of the car and not by the sills, and in ten years' experience I have never known one of them to sag; even after years of hard and fast service over the rough track of branch lines, the alignment of the side sills is as near as we can measure the same as when the car left the shop originally.

Annual Meeting of Railway Fire Protective Association.—The Railway Fire Protective Association held its second annual meeting in Chicago on October 5th, 6th and 7th. The committee reports included a discussion of the following topics:

Fire Prevention and Protection in Coaling Stations.

Fire Prevention and Protection in Grain Elevators.

Fire Prevention and Protection in Terminal Classification and Storage Yards.

Cotton Hazards.

Oil Burning Appliances.

Hand Fire Extinguishing Apparatus.

Electrical Hazards.

Locomotive Spark and Ash Pan Hazards.

Fire Prevention and Protection in Stations, Freight Depots and Warehouses.

The convention was also addressed by Mr. T. O. Powell, vice-president of the A. G. S. Railroad, and by Mr. F. A. Silcox, district forester of the United States Forest Service, who spoke on the "Railroads and Forest Fires."

October Meeting of Canadian Railway Club.—The Canadian Railway Club was addressed on October 12th by E. S. N. McNab, engineer of electric car lighting of the Canadian Pacific Railway, on "Electric Light of Railway Passenger Cars." Mr. McNab treated the subject largely in a non-technical manner which made it interesting to the majority of the members of the Club. He explained the methods adopted in lighting cars by electricity and divided them into three systems, namely, straight storage, head end and axle systems; and gave a brief description of each.

Fourth Annual Congress of National Safety Council.—The fourth annual Congress of the National Safety Council was held in Philadelphia on October 15th. There were a number of railroad men in attendance who delivered interesting ten-minute talks on various phases of the safety movement in its relation to railway work. Mr. C. H. Blackmore, chairman of the Safety Commission of the Norfolk and Western Railroad, delivered an interesting address on "Accident Prevention," from which we quote as follows:

"An accident prevention campaign is designed to prevent accident, not merely to enable us to print safety first on our letter heads, and, to really prevent, it is first necessary to know what causes are responsible for the accidents we wish to control.

"Preventable injuries to railway employes are divided into two general classes; the one class caused by the master on account of his failure to inspect, to promptly repair and to guard, the second class caused by the servant himself and due to those thoughtless, careless, practices to which railway employes are so peculiarly addicted. A close analysis of causes will make clear, I think, that only a small minority of injuries can now be placed in the first class, and that even that small minority is constantly growing smaller because employers are so rapidly covering the field of inspection, guarding and mechanical precaution, which leaves to-day the great majority to be placed in that second class to which I have referred; in short, I think I am safe in saying that more than 70 per cent of preventable injuries to railway employes are due to their own careless or thoughtless acts, and to make substantial future progress that 70 per cent must receive your almost exclusive attention, and if your efforts are to be successful you must influence the individual employe to correct his thoughtless habits, which, of course, brings up that important question—'HOW SHALL I INFLUENCE HIM?'

"Now for fifty years he has had the rules to guide him, and discipline to punish him, yet accidents have consistently continued so it is clear that what we need is something more, something which will inject into his mind the DESIRE to be a safe man and the knowledge of how best to accomplish it, and to inject anything into his mind it is first necessary to really interest him, then, after you have interested him, to cause him to secure the maximum education with the minimum effort, and I do not hesitate to say that in my opinion this can be accomplished more perfectly by moving pictures than by any other possible means.

"Your educational facilities need not, of course, be confined to pictures, but in no other particular branch will you be so successful. By all means send out literature, by all means talk to the men, although much of both will be wasted. I have talked to our men, I have sent them literature, and I have shown them pictures, and I have carefully observed the result of each effort, and I do not hesitate to say that pictures are, of all, the most effective medium for making a real and lasting impression upon the average workman.

"During the last five months I have had in operation on our line a Motion Picture-Lecture Car equipped with a high-class motion picture machine, a Bausch & Lomb stereopticon and an aluminum screen, with which we produce as attractive motion pictures as are to be seen in even the best class of professional theatres. The car is most attractively furnished and illuminated, is supplied with both wall and exhaust fans, and has the most approved system of ventilation. Our program is made up of a lecture of fifteen minutes, followed by lantern slides consuming twenty minutes, each slide being commented on by the lecturer, and finally a two-reel motion picture occupying about twenty-five minutes—a total of approximately one hour.

"The motion picture is that admirable one called "Steve Hill's Awakening," the story of which was written by our accomplished chairman and produced under his direction, and I pause here to say that for its purpose I can conceive of no film more interesting, forceful or comprehensive.

"During these five months nearly 10,000 employes have visited our car and the effect on them has been amazing. I entered this entirely new field with some misgiving, particularly as concerned the attendance of transportation men, who could not attend on the company's time because their duties would not permit of it, and who could not be controlled while off duty except through a personal desire to see the pictures, and I wondered if that desire would be sufficiently strong to influence them to voluntarily leave their homes and personal affairs, but instead of being obliged to persuade them to come, we cannot keep them out, the car being frequently so crowded that men must be turned away, and one of the most pleasing features has been the effect produced upon the older employes.

"As many of you have learned by bitter experience, the man upon whom your safety efforts have made the least impression has been, too often, the old employe. These pictures, however, have made a great impression on this class. Many of them go into the car because they hear other employes talk about it, rather expecting, however, to be bored, or at most, only mildly interested, but after the exhibitions they come to me regularly, most enthusiastic in their praise of the entertainment, and in many cases ask to be permitted to come again and bring their families. What was said to me by one old-timer will serve to typify their general attitude. This old conductor, after telling me how he had enjoyed the exhibition, said: Nothing you said about accidents was new to me, and nothing was shown in the pictures which I had not seen done a hundred times in life, in fact, I have done most of them myself, but the fact is I never thought about them as this exhibition has made me think, and if this outfit don't get the men with families to thinkink you may as well quit trying."

LEGAL.

New Haven Directors Indicted.—After at least eight years of private attack, and nearly as many years of official investigation, twelve former directors of the New York, New Haven and Hartford Railroad, out of twenty-one originally indicted, were called upon to face trial in the United States Court on a charge of having conspired to monopolize the transportation facilities of New England.

The men who have been called to the bar before Circuit Court Judge William H. Hunt are: William Rockefeller, George MacCulloch Miller, Charles F. Brooker, D. Newton Barney, Robert W. Taft, Lewis Cass Ledyard, Charles N. Pratt, A. Heaton Robertson, James S. Hemmingway, F. F. Brewster, Henry K. McHarg and E. D. Robbins.

Alexander Cochrane, George F. Baker, Theodore N. Vail, T. DeWitt Cuyler, Edward Milligan and Francis T. Maxwell, other directors, are to be tried on the same charge at a later date. Permission for a separate hearing was granted them by the court.

The importance of the New Haven case is not only because of the prominence of the men who have been indicted but because of the voluminousness of the matter which is to be presented as evidence. Every act of the New Haven directorate looking toward the acquisition of any property whatsoever from 1890 down to a day within three years of the finding of the indictment on February 26, 1915, has been investigated, analyzed according to the theory of the prosecution, and set forth. It is estimated that it will take four months to try the case.

While the Sherman Act, or the criminal law based upon it, is the sole reliance of the Government, there have been indications that before the defense is finished much more intricate questions of law will arise. A question which may arise will be that of State "sovereignty" the right of a State to legislate for its domestic corporations and in that it may be that the State of Massachusetts will find itself interested before the trial is ended.

Another question which may come up will be the power of one Administration to bind its successors, and on that phase both former President Taft and his Attorney General George Wickersham, might become witnesses for the defense.

Rock Island Directors Sued.—Directors of the Rock Island System under the regime of Daniel G. Reid and William H. Moore, have been made defendants in the Supreme Court at New York in a restitution suit for $7,500,000, brought by Jacob M. Dickinson, receiver for the Chicago, Rock Island and Pacific Railway Company, the operating company of the Rock Island combination.

The defendants are Daniel G. Reid, William H. Moore, Richard A. Jackson, Francis L. Hine, William T. Graham, Ogden Mills, Edwin S. Moore, Henry L. Mudge, George T. Boggs, and the estate of George G. McMurtry. They are asked to pay to the plaintiff the amount sued for. with interest from 1909.

The complaint sets forth the organization of the Chicago, Rock Island and Pacific Railway Company, an Illinois and Iowa concern, capitalized at $75,000,000, and the incorporation of the Chicago, Rock Island and Pacific Railroad Company, alleging that except $500 paid by certain stockholders, the entire capital stock of the latter was issued without cash consideration and in exchange for the preferred and common stock of the Rock Island Company, a $150,000,000 New Jersey corporation.

The complaint alleges that, except for a small amount of cash believed to be $50,000, the stock of the latter was issued without cash consideration. The organization of the St. Louis and San Francisco Railroad Company, a Missouri corporation, with $100,000,000 capital, is also recited.

Receiver Dickinson asked the court that the defendants be required to account for the money expended by the railway company in connection with the loan and that "the defendants and each of them, be required to pay to the plaintiff the sum of $7,500,000 with interest thereon from the first day of December, 1909."

The suit was brought by the receiver by direction of the Federal Court in Chicago. The transaction on which it is based was brought out in evidence at the investigation several months ago of Rock Island affairs by the Interstate Commerce Commission.

Lackawanna Indicted for Rebating.—The Federal grand jury of New York has returned an indictment under the Elkins amendment to the interstate commerce law, charging the Delaware, Lackawanna and Western Railroad with failing to charge the Delaware, Lackawanna and Western Coal Company the full amount due under the Federal tariffs for shipments of coal made by the coal company over the Lackawanna lines.

Under the indictment the Lackawanna Railroad as a corporation would be amenable to a fine of $20,000 if found guilty.

Twenty specific occasions are mentioned in the indictment in which the railroad failed to collect from the coal company the demurrage which should have been charged for delay in the shipment of the anthracite caused by the holding up of the coal barges at the Lackawanna piers in Hoboken.

Twelve Trunk Lines Involved in Federal Indictment.—Twelve trunk line railroads are named in a Federal indictment returned against officials of the South Texas Truck Growers' Association. Roy Campbell, former sales manager, is charged with accepting rebates and the roads with having given unlawful concessions to the Association. John H. Davis and Arch McFarland, president and traffic manager of the Association, were also indicted. The three were arrested and released under a $5,000 bond each.

The railroads named are the Chicago and Alton; Pennsylvania; St. Louis, Iron Mountain and Southern; Houston and Shreveport; Texas and Pacific; Missouri, Kansas and Texas; Union Pacific; Grand Rapids and Indiana; Louisville, Henderson and St. Louis; St. Louis and San Francisco; Cleveland, Cincinnati, Chicago and St. Louis, and the Chicago, Milwaukee and St. Paul.

TRAFFIC AND RATES.

First Year's Traffic Through Panama Canal.—The first year of regular commercial operation through the Panama Canal was completed at the close of business on August 15th.

During the year a total of 1,317 oceangoing vessels, in commercial or naval service including yatchs, passed through the Canal. Their aggregate net tonnage, Panama Canal measurement, was 4,596,644 tons, and their aggregate gross tonnage, Panama Canal measurement, was 6,494,673 tons. The average net tonnage of the vessels was 3,490. The average gross tonnage was 4,931.

As divided between eastbound and westbound movements, 661 vessels passing from the Pacific to the Atlantic had aggregate gross and net Canal tonnages of 3,227,757 and 2,286,144, respectively; while 656 vessels in transit from the Atlantic to the Pacific had gross and net tonnages of 3,266,916 and 2,310,500, respectively.

The tolls earned during the year, including $114,085.89 levied on United States Government vessels, but not collected, amounted to $5,216,149.26.

Recently traffic through the Canal has been entirely suspended owing to the further movement of slides at Culebra. These have now assumed such proportions that although there has been no movement through the Canal since September 18th, it appears improbable that the Canal can again be opened to navigation during the present year. In fact the authorities have issued a statement that on account of the continued movement of the slides it is impossible at the present time even to approximate the date on which the Canal will be opened.

GENERAL NEWS NOTES.

Increase in Number of Pennsylvania Railroad Stockholders.—A compilation just completed shows that the Pennsylvania Railroad on September 1, 1915, had an even 94,000 stockholders. This is an increase of 3,361 in a year and is the largest number of stockholders ever recorded for this or any other railroad company in the world. If the same rate of increase is maintained, the Pennsylvania Railroad will have 100,000 stockholders in less than two years.

The growth in the number of stockholders in the last year has been due solely to a wider distribution of the stock, as there has been no issue of new shares during the period. Each stockholder on September 1st of this year owned an average of 106.23 shares, or 3.96 shares less than the average holding twelve months earlier. During August of the current year, 58 per cent more transfers of the stock were recorded on the company's books than in the same month of 1914.

The women stockholders, alone, of the Pennsylvania Railroad now outnumber the entire men, women and corporate owners of the stock of its nearest rival in this respect—another American railroad. On the first day of this month 45,428 women—1,743 more than a year ago—held stock in this company and between represent nearly a one third interest in the property. Of the entire 94,000 stockholders, 33,053 were Pennsylvanians, 16,024 lived in New York State, 16,366 in New England, 16,671 elsewhere in the United States and 11,886 in foreign countries.

The number of foreign holders of this company's stock has continued to increase throughout the European war. There were 62 more foreign stockholders on September 1, 1915, than on the same date in 1914, and 64 more than in July 1914, prior to the opening of the conflict.

Baltimore and Ohio Improving Its Mail Department.—In order to bring its mail department up to highest effectiveness and as a new step in its efficiency and economy campaign in vogue throughout the system, the Baltimore and Ohio Railroad has just installed in its central offices at Baltimore a system of postoffice boxes similar to those in use by the Government.

Each office in the building is furnished a key to a box in its mail-room, a representative of each office being designated to look after the mail. In addition to enabling the mail department's clerical force to attend solely to the sorting of incoming and outgoing mail, the new plan provides the various departments with a continuous day and night service. Prior to this arrangement there was no night service and clerks of the mail department were continually interrupted in their work to deliver mail when called for.

This arrangement will therefore effect a large saving in time and greater promptness in the delivery of mail—one of the vital organs of the business body.

Similar offices are established at the principal points and where division headquarters are located on the Baltimore and Ohio, enabling the handling of all railroad correspondence with the utmost dispatch.

The railroads have adopted a new method for efficiency in handling the large volume of correspondence between themselves by assembling all mail matter for various destinations and sending it in a single package to the mail departments of the respective companies. This insures prompt delivery of mail while reducing the expense of handling it.

Oregon-Washington Railroad and Navigation Company Appoints Women Ticket Agents.—Woman's sphere in the field of business is no longer a restricted one, but has been rounded and amplified until it embraces every line of commercial activity. Her influence and capabilities have not only commanded recognition in every quarter, but have created a positive demand for her services. It is in appreciation of these facts that the Oregon-Washington Railroad and Navigation Company (Western unit of the Union Pacific System) has appointed women assistants in their city ticket offices in Portland, Oregon, and Seattle, Spokane and Walla Walla, Wash. These young ladies will be expert passenger and ticket agents and will cater especially to the great number of women traveling without male escorts. It is thought that this step will add a personal touch to the service of the road named that will make preliminary travel arrangements a pleasurable feature of a trip via its lines, and will destroy any inclination to call upon male friends or relatives for assistance. If the arrangement (which was made effective June 20th) meets with the favor anticipated, it will be extended to other points on the system.

Relief Department of the Baltimore and Ohio.—The Relief Department of the Baltimore and Ohio Railroad has paid a total of $20,096,883 in benefits in the 35 years of its operation—May 1, 1880, to June 30, 1915,—according to a report just issued. Included in the payments was $6,149,737 which went to 335,264 employes during natural sickness, while $5,029,180 was paid as insurance indemnity on account of natural death.

The report further shows that during the fiscal year, 1915, $1,440,000 was loaned to employes of the railroad to assist in the purchase of homes.

LAND AND INDUSTRIAL.

Lehigh Valley's Farm Products' Directory.—Endeavoring to bring farmers, dealers and commission merchants in closer relation with each other, the Lehigh Valley Railroad has just issued a directory of farm products grown along its lines. This directory, which will be sent to the markets in New York, Philadelphia, Boston and the far western cities, as well as to the farmers and merchants themselves, is so arranged that the names of those dealing in a certain product are listed under that head. For example, all the farmers, commission merchants and dealers handling apples are shown under "Apples"; those handling potatoes under "Potatoes," etc. The management of the railroad believes this directory will be the means of increasing the general prosperity of the towns located on its lines by opening up new markets for their products.

The South as a Grain Producing Section.—The superlative advantages of the South as a grain producing section will be given great prominence in exhibits which Southern Railway, Mobile and Ohio Railroad, Georgia Southern and Florida Railway, Virginia and Southwestern Railway, and affiliated lines will make at thirty state, district and county fairs in the North and Middle West during the coming fall.

An especially fine collection of grains will be shown while the grasses and forage crops exhibited will be of very high character. From the wheat-growing section of the South, grain sheaves will be shown from fields yielding as high as 40 bushels to the acre and the character of other exhibits will be in keeping. The fruits and vegetables to be shown in jars include a wide variety.

These exhibits come from various districts of the entire territory served by Southern Railway and affiliated lines in Virginia, North and South Carolina, Georgia, Alabama, Florida, Mississippi, Tennessee and Kentucky. They will be shown in Pennsylvania, New York, Indiana, Michigan, and Illinois and each exhibit will be attended by agents, well equipped to tell callers about the various sections of the South represented and to give information about the opportunities to be found in them. Especially attractive literature will be widely distributed at these exhibits.

The first two exhibits will be shown at fairs in Indiana. For all fairs in the Middle West a special exhibit tent has been provided, arranged so that a large number of people can see the exhibit at the same time. Past experience has shown that these exhibits of Southern products are very frequently the big feature of country fairs and attract large numbers of farmers. Throughout many of the states the Southern Railway exhibit has become well known and is looked for. This has made it necessary to arrange for caring for more than the ordinary crowd.

Pennsylvania Directory of Fruit, Vegetable and Produce Growers and Shippers.—As a further aid in the efficient distribution and marketing of farm products, the Pennsylvania Railroad is about to issue a new and much enlarged edition of its "Directory of Fruit, Vegetable and Produce Growers and Shippers."

The first edition was issued in 1912, and the supply has been exhausted. The new edition will contain the names of more than 10,000 farmers, truckmen and orchardists in New York, New Jersey, Pennsylvania, Delaware, Maryland and Virginia. The territory covered is that traversed by the lines of the Pennsylvania Railroad, the Philadelphia, Baltimore and Washington Railroad, the West Jersey and Seashore Railroad and the New York, Philadelphia and Norfolk Railroad.

A feature of the new edition of the directory will be the classification of each grower according to the principal character of his produce. Six classifications will be used, namely: apples, white potatoes, sweet potatoes, cabbages, onions and general produce.

It is planned to give the revised directory a wide distribution among dealers in farm produce in all consuming centers and throughout the great markets for fruits and vegetables accessible from the regions in which the listed growers are located. The purpose of the company, in compiling and issuing the enlarged directory is to help build up agriculture along its lines, encourage closer contact between consumer and producer, and broaden the markets in which the farmer can sell.

NEW ROADS.

New Maryland Railroad.—A charter has been issued by the Secretary of State of West Virginia for the incorporation of the Fairmont and Helen's Run Railway Company of Baltimore, with an authorized capital stock of $500,000. The incorporators named in the certificate are: Carl R. Gray, president of the Western Maryland Railway Company; M. C. Byers and C. H. Porter, who are assistants to President Gray; H. R. Pratt, the chief engineer of the Western Maryland, and L. F. Timmerman, secretary of the company.

New Oklahoma Railroad.—A charter has been granted to La Kemp & Northwestern Railway Company, with headquarters at La Kemp, Okla., the capital stock being $100,000. It is estimated that the cost of the line will be $400,000. The company purposes to build a line 125 miles long across the northwestern corner of the state, connecting with the "Panhandle" division of the Atchison, Topeka & Santa Fe between Fargo, Okla., and Goodwin, Tex., and running northwest through La Kemp in Beaver County connecting with the Chicago, Rock Island & Pacific's El Paso line at Liberal, Kan. A 20-mile branch is provided from Ivanhoe, in Beaver County, to May, in Happer County.

RAILWAY PUBLICATIONS.

Historic Booklet Issued by Baltimore and Ohio.—"The Blue and the Gray," is the title of a historical booklet issued by the Baltimore and Ohio Railroad, descriptive of battle-fields on or near its lines and which bear evidence of bitter conflicts which stirred the American people in Revolutionary days, during the second war with England in 1812 and the Civil War.

The booklet is attractively prepared and elaborately illustrated by views of points of historic interest, the cover design embodying the emblems of the men who wore the Blue and of those who wore the Gray, supporting the Stars and Stripes.

Of the interesting illustrations are the headquarters of General Washington at Winchester and at Valley Forge, the headquarters of General Meade and General Lee at Gettysburg, the monument which marks the highwater mark of the Lost Cause during this battle; General Stonewall Jackson's headquarters and the house where John Brown planned the attack upon Harper's Ferry.

A brief history of Colonial and Revolutionary times is recited and stories are also told of the principal events of the war between the States, including the attack upon the Massachusetts Regiment in Baltimore, John Brown's conspiracy at Harper's Ferry, battles in the Shenandoah Valley, at Cedar Creek to which General Sheridan rode from Winchester "twenty miles away," and at Martinsburg, where the railroad's property was destroyed, its locomotives taken away for service at other points in the South.

The description of the battle of Gettysburg is from the account of General H. S. Huidekoper.

The monument to Francis Scott Key, author of the "Star Spangled Banner," in Frederick, Md., near which city he was born, and Patrick Street in Frederick, through which Stonewall Jackson's army marched during the Barbara Fritchie incident are also among the illustrations.

The battles on or near the Baltimore and Ohio, from the first engagement at Phillippi, W. Va., June 3, 1861, to General Lee's surrender at Appomattox Court House, April 9, 1865, are arranged chronologically for ready reference. One hundred and fifty-eight battles were fought on soil adjacent to the Baltimore and Ohio Railroad during the Civil War.

The booklet is being distributed complimentary to students of history and tourists.

BOOK REVIEWS.

Field Engineering, by William H. Searles, C. E., published by John Wiley & Sons, New York. This is a new and up-to-date edition of a book that has been a standard for over a third of a century.

It is now published under one cover or in two parts, one covering the text matter and one the tables. It contains a large amount of new matter with the best of the old retained. Seven new chapters have been added, covering the following subjects: Reversed Curves, The Spiral Curve, Slope Stakes, Earthwork Tables, Earthwork Diagrams, Haul and the Mass Diagram, and Track Laying.

The spiral adopted is the well-known Searles' Spiral which is in extended use on railways.

The chapters on calculation of Earthwork and Turnouts have been rewritten, extended and brought up to the latest practice. Practically every page and chapter in the book have been carefully considered and revised when found advisable.

Sixteen new tables have been added. They are: two on turnouts; eight on the spiral; one each on metric curves; area for 100 feet right of way; velocity heights; mean refractions; triangular prisms, and prismoidal corrections.

The tables on triangular prisms and prismoidal corrections are more extended than any now published.

The net result of the additions and changes is to increase the size of the book from 500 to 600 pages, and to maintain the work as a most complete and practical one on the subject of Railroad Curves and Earthwork.

RESIGNATIONS.

Executive.

T. D. Rhodes, vice-president, Georgia Coast and Piedmont Railroad.

A. B. Steele, president, Atlanta and St. Andrews Bay Railway.

Accounting.

C. E. Dudley, auditor of expenditures, Chicago, Milwaukee and St. Paul Railway.

Robert E. Farmer, auditor and car accountant, Gainesville and Northwestern Railway.

Engineering and Mechanical.

F. C. Carlson, master mechanic, Texas and Pacific Railway.

J. P. Dolan, master mechanic, Apalachicola Northern Railroad.

G. W. Lillie, acting mechanical superintendent, Chicago, Rock Island and Pacific Railway.

A. J. Mayham, master mechanic, Spokane and Inland Empire Railroad.

F. G. Morehart, signal supervisor, Middle and

Pittsburgh divisions, Buffalo, Rochester and Pittsburgh Railway.

John H. Pontius, general engine inspector, Pennsqlvania Lines West of Pittsburgh.

R. J. Turnbull, mechanical superintendent, Missouri Pacific-St. Louis, Iron Mountain and Southern Railway.

Operation.

F. L.,Birdsall, superintendent, Rocky Mountain division, Northern Pacific Railway.

Keplor Johnson, trainmaster, Southern division, Chicago, Rock Island and Gulf Railway.

J. L. Otis, trainmaster, International and Great Northern Railway.

H. J. Simmons, general manager, El Paso and Southwestern Railway.

Traffic.

Charles G. Chisholm, district freight and passenger agent, Southern Pacific. Headquarters, Seattle, Wash.

Truman H. Clark, commercial agent, Chicago, Milwaukee and St. Paul Railroad.

G. H. Corse, Jr., general passenger agent, San Francisco Overland Routes.

H. E. Crowley, general livestock agent, Chicago, Rock Island and Pacific Railway.

A. G. Everett, general agent, Chicago, Burlington and Quincy Railroad.

J. L. Harris, general livestock agent, Wabash Railroad.

ELECTIONS AND APPOINTMENTS.

Executive.

Sidney Aronstein, vice-president in charge of territorial development, Georgia Coast and Piedmont Railroad. Headquarters, New York City.

B. F. Bush, receiver, Missouri Pacific and the St. Louis, Iron Mountain and Southern. Headquarters, St. Louis, Mo.

Asa G. Chandler, president, Atlanta and St. Andrews Bay Railroad. Headquarters, Atlanta, Ga.

O. G. Parsley, vice-president, Missouri, Oklahoma and Gulf Railway. Headquarters, Fort Worth, Texas.

F. J. Shepard, assistant to receiver, Missouri Pacific Railway and the St. Louis, Iron Mountain and Southern Railway. Headquarters, New York City.

W. B. Wilson, vice-president, East and West Coast Railway. Headquarters, Bradentown, Fla.

B. A. Worthington, vice-president and general manager, Cincinnati, Indianapolis and Western Railway.

Legal.

Benjamin S. Crow, assistant general counsel Oregon Short Line. Headquarters, Salt Lake City, Utah.

Perry McCart, general attorney, Chicago, Indianapolis and Louisville Railway. Headquarters, Chicago, Ill.

William G. Wheeler, general solicitor, Chicago and North-Western Railway. Headquarters, Chicago, Ill.

Financial.

M. A. Clyburn, treasurer, East and West Coast Railway. Headquarters, Bradentown, Fla.

F. M. Hickman, local treasurer, Missouri Pacific Railway and the St. Louis, Iron Mountain and Southern Railway, Headquarters, St. Louis, Mo.

F. D. Stover, assistant treasurer, Pacific and Idaho Northern Railway. Headquarters, New Meadows, Idaho.

H. L. Utter, treasurer, Missouri Pacific Railway and the St. Louis, Iron Mountain and Southern Railway, Headquarters, New York City.

William G. Wheeler, general solicitor, Chicago, Milwaukee and St. Paul Railway. Headquarters, Chicago, Ill.

Accounting.

F. E. Allen, auditor of expenditure, Chicago, Milwaukee and St. Paul Railway. Headquarters, Chicago, Ill.

T. Cox, auditor, Pacific and Idaho Northern Railway. Headquarters, New Meadows, Idaho.

J. G. Drew, chief accounting officer, Missouri Pacific Railway and the St Louis, Iron Mountain and Southern Railway. Headquarters, St. Louis, Mo.

A. A. Holmes, auditor, Atlanta and St. Andrews Bay Railroad. Headquarters, Panama City, Fla.

H. A. McLaurin, auditor and car accountant, Gainesville and Northwestern Railroad. Headquarters, Gainesville, Ga. ,

E. A. Murphy, freight auditor, Chicago, Milwaukee and St. Paul Railway. Headquarters, Chicago, Ill.

Francis J. Owens, auditor, Chicago Union Station Company. Headquarters, Chicago, Ill.

W. W. Scannell, assistant freight auditor, Chicago, Milwaukee and St. Paul Railway. Headquarters, Chicago, Ill.

J. L. Strong, auditor, East and West Coast Railway. Headquarters, Bradentown, Fla.

Engineering and Mechanical.

T. A. Albright, road master mechanic, Texas and Pacific Railroad. Headquarters, Marshall, Texas.

F. K. Bennett, valuation engineer, Minneapolis and St. Louis Railway. Headquarters, Minneapolis, Minn.

R. M. Boldridge, master mechanic, Apalachicola Northern Railway. Headquarters, Port St. Joe, Fla.

R. L. Chandler, district master car builder, New York Central Railroad.

J. C. Gardner, chief engineer, East and West Coast Railway. Headquarters, Bradentown, Fla.

E. J. Harris, acting mechanical superintendent, Chicago, Rock Island and Pacific Railway. Headquarters, Topeka, Kansas.

A. M. Hillborn, general car foreman, Illinois Central Railroad. Headquarters, Memphis, Tenn.

A. J. Himes, engineer of grade-crossing elimination, New York, Chicago and St. Louis Railway. Headquarters, Cleveland, Ohio.

P. Linthicum, acting master mechanic, Missouri division, Chicago, Rock Island and Pacific Railroad. Headquarters, Trenton, Mo.

J. H. Moore, signal supervisor, Buffalo division, Buffalo, Rochester and Pittsburgh Railway. Headquarters, East Salamanca, N. Y.

E. S. Mudge, assistant engineer, in charge of valuation, Atchison, Topeka and Santa Fe Railway. Headquarters, Amarillo, Texas.

J. E. O'Brien, mechanical superintendent, Missouri Pacific and St. Louis, Iron Mountain and Southern Railway. Headquarters, St. Louis, Mo.

W. H. Ownes, mechanical member of valuation department, Southern Railway. Headquarters, South Richmond, Va.

C. A. Parker, signal supervisor, Middle and Pittsburgh divisions, Buffalo, Rochester and Pittsburgh Railway. Headquarters DuBois, Pa.

W. D. Pearce, supervisor of bridges and buildings, Yellowstone division, Northern Pacific Railway. Headquarters, Glendive, Mont.

C. D. Perry, road foreman of engines, Delaware and Hudson Company. Hadquarters, Oneonta, N. Y.

W. M. Schmazreid, general inspector of passenger and freight cars, Texas and Pacific Railroad. Headquarters, Marshall, Texas.

W. C. Smith, assistant mechanical superintendent, Missouri Pacific and St. Louis, Iron Mountain and Southern Railway. Headquarters, St. Louis, Mo.

A. Salinsky roadmaster, Division 5, Buffalo, Rochester and Pittsburgh Railway. Headquarters, Punxsutawney, Pa.

R. D. Starbuck, special engineer, New York Central. Headquarters, New York.

W. O. Thompson, superintendent of rolling stock, New York Central Railroad. Headquarters, Cleveland, Ohio.

H. J. White, supervisor, car work, Canadian Northern Railway. Headquarters, Toronto, Ont.

Julius E. Willoughby, chief engineer, Atlantic Coast Line. Headquarters Wilmington N. C.

Operation.

F. R. Bartles, superintendent, Minnesota division, Northern Pacific Railway. Headquarters, Staples, Minn.

C. E. Benjamin, chief train despatcher, Buffalo division, New York, Chicago and St. Louis Railway. Headquarters, Conneaut, Ohio.

John Bose, superintendent, Louisville division, Louisville and Nashville Railroad. Headquarters, Mobile, Ala.

F. W. Brown, assistant to general manager, Southern Railway, the Virginia and Southwestern and the Northern Alabama railways. Headquarters, Washington, D. C.

A. V. Burr, superintendent, Pullman Company. Headquarters, St. Louis, Mo.

E. L. Cline, superintendent, Florida East Coast Railway. Headquarters, Miami, Fla.

J. C. Callahan, chief clerk, division superintendent, New York, Chicago and St. Louis Railroad. Headquarters, Fort Wayne, Ind.

Joseph A. Caviezel, general superintendent, Alabama, Tennessee and Northern Railway. Headquarters, York, Ala.

C. H. Doorley, acting superintendent, Elgin, Joliet and Eastern Railway.

P. J. Flynn, superintendent, Canadian Northern, Headquarters, Winnipeg, Man.

John M. Egan, superintendent, Tennessee division, Yazoo and Mississippi Valley Railroad. Headquarters, Fulton, Ky.

Thomas M. Flynn, trainmaster, Northern Pacific Railway. Headquarters, Glendive, Mont.

W. T. Griswold, superintendent, Atlanta and St. Andrews Bay Railway. Headquarters, Panama City, Fla.

G. F. Hawks, general manager, El Paso and Southwestern System. Headquarters, El Paso, Texas.

A. M. Hilburn, general car foreman, Illinois Central Railroad. Headquarters, Memphis, Tenn.

F. C. Huntington, superintendent, Fargo division, Northern Pacific Railway. Headquarters, Dilworth, Minn.

W. A. Hydo, trainmaster, Southern division, Chicago, Rock Island and Gulf Railway. Headquarters, Fort Worth, Texas.

Ben B. Johnson, chief dispatcher and division operator, Northern Pacific Railway. Headquarters, Pasco, Wash.

Paul F. Keating, superintendent, Great Northern Railway. Headquarters, Wilmar, Minn.

Robert King, superintendent, Transcontinental Railway. Headquarters, Winnipeg, Man.

T. F. Lowry, superintendent, Rocky Mountain division, Northern Pacific Railway. Headquarters, Missoula, Mont.

Edward J. Moran, trainmaster, Northern Pacific Railway. Headquarters, Pasco, Wash.

John J. Murphy, trainmaster, Northern Pacific Railway. Headquarters, Jamestown, N. D.

John J. Mulroy, trainmaster, Northern Pacific Railway. Headquarters, Jamestown, N. D.

John J. Pelley, superintendent, Memphis division, Yazoo and Mississippi Valley Railroad. Headquarters, Memphis, Tenn.

O. P. Powell, assistant general superintendent, Pullman Company. Headquarters, Chicago, Ill.

J. T. Ransom, general superintendent, Pullman Company. Headquarters, Chicago, Ill.

J. C. Resch, superintendent, Fort Worth division Great Northern Railroad. Headquarters, Mart, Texas.

J. A. Rittenhouse, superintendent. Pullman Company. Headquarters, Philadelphia, Pa.

A. Robertson, chief operating officer for receivers, Missouri Pacific-Iron Mountain System. Headquarters, St. Louis, Mo.

J. P. Semmes, trainmaster, New Orleans and Mobile division, Louisville and Nashville Railroad. Headquarters, Mobile Ala.

William C. Sloan, trainmaster, Northern Pacific Railway. Headquarters, Forsyth, Mont.

W. H. Smith, inspector of transportation, Nashville, Chattanooga and St. Louis Railway. Headquarters, Nashville, Tenn.

C. M. Stone, trainmaster, Baltimore and Ohio Railroad. Headquarters, Connellsville, Pa.

A. A. Tisdale, superintendent, Regina division, Canadian Pacific Railway. Headquarters, Regina, Sask.

Thomas B. Turner, assistant superintendent, Louisville and Nashville Railway. Headquarters, Mobile, Ala.

W. H. Waite, superintendent, Pullman Company. Headquarters, New York City.

J. P. Walker, assistant superintendent, Atlantic Coast Line. Headquarters, Charleston, S. C.

W. W. Warner, general foreman, steel car repair shops, Erie Railroad. Headquarters, Cleveland, Ohio.

E. Wilson, trainmaster, International and Great Northern Railroad. Headquarters, San Antonio, Texas.

G. P. Wolf, assistant superintendent, Gulf division, Great Northern Railroad. Headquarters, Palestine, Texas.

E. M. Wrenne, acting superintendent of transportation, Nashville, Chattanooga and St. Louis Railway. Headquarters, Nashville, Tenn.

J. K. Yohe, Jr., assistant superintendent, Baltimore and Ohio Railroad. Headquarters, Cumberland, Pa.

Traffic.

Charles M. Andrews, district freight and passenger agent, Southern Pacific Railway. Headquarters, Seattle, Wash.

P. L. Behmeyer, traveling freight agent, Wabash Railroad. Headquarters, Decatur, Ill.

A. A. Boyle, commercial agent, Missouri and North Arkansas Railway. Headquarters, Birmingham, Ala.

R. A. Brown, commercial agent, Wabash Railroad. Headquarters, Cleveland, Ohio.

J. J. Clark, chief of the Tariff Bureau, Chicago and Eastern Illinois Railway. Headquarters, Chicago, Ill.

G. H. Corse, Jr., special agent, passenger department, Union Pacific. Headquarters, Chicago, Ill.

John T. Cummins, general advertising agent, Union Pacific System. Headquarters, Chicago, Ill.

J. W. Daniel, commercial agent, Missouri, Oklahoma and Gulf Railway. Headquarters, Houston, Texas.

R. J. Darnley, general agent, Chicago, Burlington and Quincy Railroad. Headquarters, Rockford, Ill.

F. S. Davis, general western freight and passenger agent, New York, New Haven and Hartford Railway and the Central New England and the New England Steamship Company. Headquarters, Pittsburgh, Pa.

H. C. Davis, traveling passenger agent, Nashville, Chattanooga and St. Louis Railway. Headquarters, Atlanta, Ga.

G. G. Early, assistant general freight agent, Wabash-Pittsburgh Terminal Railway. Headquarters, Pittsburgh, Pa.

L. R. Gardner commercial agent New Orleans and Northeastern Railroad. Headquarters, San Antonio, Texas.

D. E. Gilbert, division freight agent, Wabash Railroad. Headquarters, Toledo, Ohio.

J. M. Hansell, commercial agent, Missouri, Oklahoma and Gulf Railway. Headquarters, Sherman, Texas.

J. L. Harris, general live stock agent, Chicago and Alton Railroad. Headquarters, Chicago, Ill.

W. A. Hopkins, general live stock agent, Wabash Railroad. Headquarters, St. Louis, Mo.

G. B. Horr, western dairy agent, Merchants' Despatch (New York Central) Headquarters, Chicago, Ill.

T. O. Jennings, freight traffic manager, Chicago and Eastern Illinois. Headquarters, Chicago, Ill.

E. W. Johnson, general dairy agent, Merchants' Despatch (New York Central). Headquarters, Chicago, Ill.

J. M. Johnson, chief traffic officer for receivers, Missouri Pacific-Iron Mountain System. Headquarters, Chicago, Ill.

Thomas J. Kenniff, commercial agent, Chicago, Milwaukee and St. Paul Railway. Headquarters, Minneapolis, Minn.

G. H. Kümmer, assistant general freight agent. Chicago and Eastern Illinois. Headquarters, Chicago, Ill.

W. H. Leahy, general freight and passenger agent, Atlanta and St. Andrews Bay Railway. Headquarters, Panama City, Fla.

W. J. Leake, soliciting freight agent, Missouri, Oklahoma and Gulf Railway. Headquarters, Dallas, Texas.

A. C. Littlejohn, commercial agent, Queen and Crescent Despatch. Headquarters, New Orleans, La.

F. M. Miller, general agent, Toledo, St. Louis and Western Railway. Headquarters, Los Angeles, Cal.

S. D. Parkhurst, eastern dairy agent, Merchants' Despatch (New York Central). Headquarters, New York.

P. A. Powers, general agent, Chicago and Eastern Illinois Railroad. Headquarters, Lennox Ill.

William T. Price, commercial agent, Union Pacific. Headquarters, Pueblo, Colo.

Frank Roach, advertising agent, Union Pacific Railroad. Headquarters, Omaha, Neb.

J. A. Simmons, general freight and passenger agent, Cincinnati, Indianapolis and Western Railway. Headquarters, Indianapolis, Ind.

Omar Sanders, commercial agent Atlanta, Birmingham and Atlantic Railway. Headquarters, Birmingham, Ala.

E. W. Sears, commercial agent, Carolina, Clinchfield and Ohio Railway. Headquarters, Jacksonville, Fla.

E. S. Stephens, general freight agent, Chicago and Eastern Illinois Railroad. Headquarters, Chicago, Ill.

J. S. Smith, commercial agent, Missouri, Oklahoma and Gulf Railway. Headquarters, Fort Worth, Texas.

J. E. Sunderland, commercial agent, Wabash Railroad. Headquarters, Peoria, Ill.

Robert Taylor, division freight agent, Atlantic Coast Line. Headquarters, Jacksonville, Fla.

G. W. Terry, traveling freight agent, Wabash Railroad. Headquarters, Memphis, Tenn.

Frank Waterhouse, foreign freight agent, Union Pacific Railway. Headquarters, Seattle, Wash.

F. E. Webster, assistant general freight agent, Chicago and Eastern Illinois Railway. Headquarters, Chicago, Ill.

E. J. West, commercial agent, Queen and Crescent Route. Headquarters, Greensboro, N. C.

S. A. Williams, general agent traffic department, Chicago and Alton Railroad. Headquarters, Peoria, Ill.

G. C. Whitney, commercial agent, New Orleans and Northeastern Railroad. Headquarters, Dallas, Texas.

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